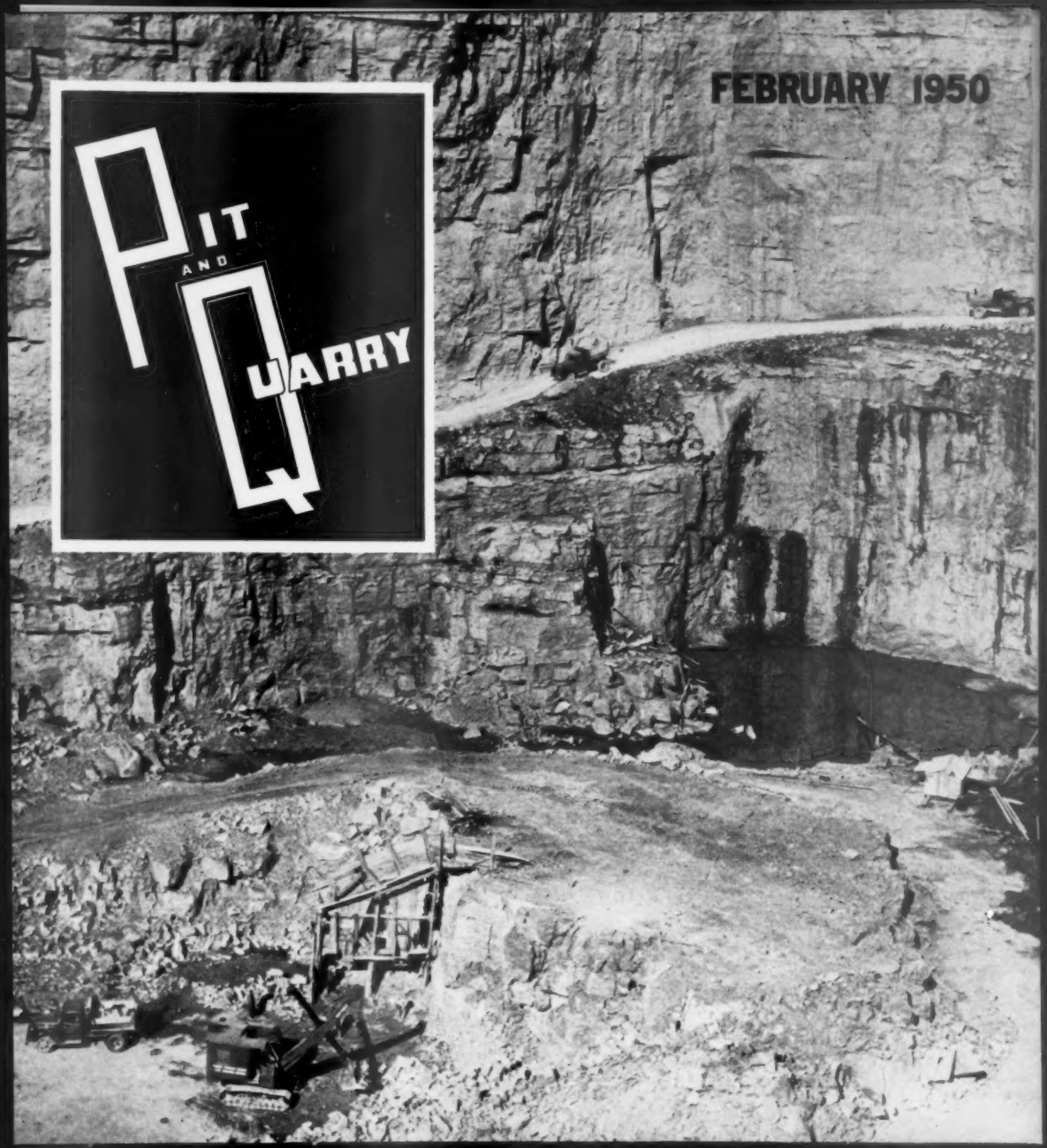
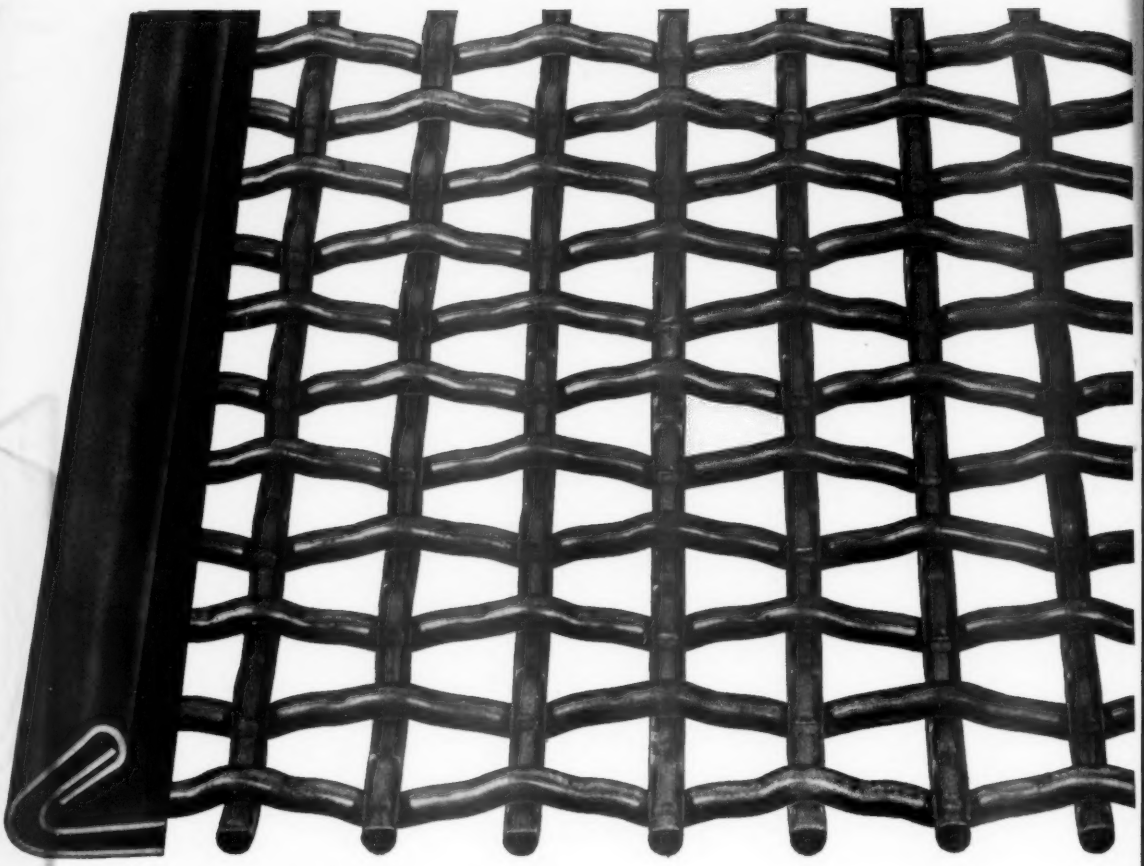

PIT AND QUARRY
FEBRUARY 1950



SUPER-LOY VIBRATING-SCREEN SECTIONS

SUPER-HARD - - - SUPER-TOUGH - - - SUPER-STRONG

SUPER-LOY SCREENS are made from a high carbon steel specially alloyed to withstand abrasion longer — endure vibration better — resist fatigue to the utmost

Order Ludlow-Saylor *Engineered* Hook Strips for all tensioned vibrator-screen sections. They transmit to every tensioned wire an equal share of uniform vibration, evenly distributed throughout the entire screen area. They make screen sections last longer step up screen capacities — are easier to handle — quicker to install — need fewer adjustments and renewals.

THE LUDLOW-SAYLOR WIRE COMPANY

634 S. Newstead Ave. **ST. LOUIS 10, MO.**

Compare the

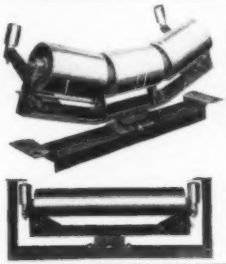
LINK-BELT "100"

Conveyor Idler Construction Features

Complete Line of Idlers

Troughing Idlers — illustrated above

Rubber-Tread Impact Troughing Idlers — recommended for use at loading points of the conveyor, especially when large lumps and heavy or coarse materials are being handled; to provide a cushion to absorb the impact of the material and protect the belt against bruising or tearing.



Positive Action Self-Aligning Idlers — for non-reversible belts. Should be spaced intermittently in both the carrying and return runs to automatically position the belt on the conveyor idler roadbed correcting misalignments due to off center loading, strong side winds, or unequal belt stretch. Counterweighted-Disc Self-Aligning Idlers for reversible belts are also available.

Return Idlers—have same smooth rounded-edge outer shell and interior construction as the troughing rolls, your assurance of an efficient return run with minimum belt wear.

Rubber Tread Return Idlers — for use when handling a wet or sticky material that clings to the belt, as these idlers induce a bending or kneading action to the belt which breaks the material loose. Also ideal for use when handling a material that has a corrosive action on iron or steel.

Link-Belt builds many types and designs of idlers for special services in addition to those illustrated. Refer your belt conveyor idler problem to Link-Belt for sound solutions.

For more than half a century, the name LINK-BELT has stood for pre-eminence in belt conveyor idlers and accessories. The original design has been steadily improved and now the Series "100" Idler offers top quality in this type of equipment. Installations have been made throughout the world and include some of the widest, the longest and the highest belt conveyors.

Link-Belt idlers offer such outstanding features: grease-in-dirt-out seal . . . rolls with smooth rounded-edge outer shell to minimize belt wear . . . high-grade roller bearings . . . interlocking nut and yokes to prevent brackets from spreading under unusual impact . . . end brackets of tough malleable iron are riveted to and extend well beyond the rigid T section cross member to provide stability and transmit load directly to steel bar feet which are welded to each end of the cross member . . . grease fittings for rolls are protected within the deep outer ribs of the end bracket and provide a convenient and safe means for lubrication.

Idlers can now be shipped from stock—full details on Series "100" Idlers are shown in Book No. 1915. It should be on the desk of every engineer using belt conveyors. Address the nearest office.

LINK-BELT COMPANY Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Dallas 1, Houston 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8. Offices in Principal Cities.

11,040

LINK-BELT

CONVEYING MACHINERY

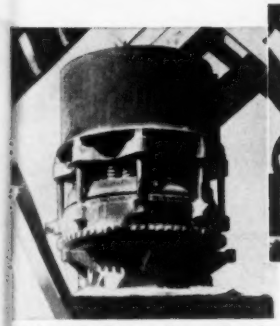
"THE COMPLETE LINE"

CRUSHING 500,000 TONS for Pennsylvania Turnpike

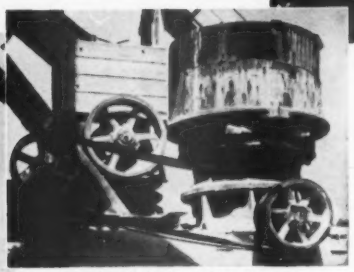
Eastern Extension

TELSMITH

Telsmith Scalping Screen



Telsmith Gyrasphere Crusher



Telsmith Jaw Crusher
Telsmith Gyratory Crusher

Telsmith Jaw Crusher
Telsmith Apron Feeder

Building the Pennsylvania Turnpike Eastern Extension brought an abnormally large demand for aggregate in Lebannon and Lancaster Counties. Pennsylvania Aggregates, Inc., built this completely new, Telsmith crushing plant at Cornwall to supply part of this temporary demand—about 500,000 tons in 15 months' time. Typically Telsmith, plant operation is smooth; up-keep is low; and production high—200-250 tons hourly, making a maximum of minus 2¼" in four different sizes.

TELSMITH Equipment in This Plant

42" x 14' Heavy-Duty Apron Feeder • 30" x 42" Roller Bearing Jaw Crusher • 30" x 150' Primary Conveyor • 5' x 12' 2-Deck Heavy-Duty Scalping Screen • 10" x 36" Roller Bearing Jaw Crusher • 13B Gyratory Crusher • 30" x 149' Conveyor • 5' x 12' 3-Deck Vibro-King Sizing Screen • No. 36 Fine Crushing Gyrasphere Crusher • 24" x 83" Return Conveyor.

Get Bulletin 266—Telsmith Complete Plant Service. Q-22

SMITH ENGINEERING WORKS, 504 E. CAPITOL DRIVE, MILWAUKEE 12, WISCONSIN

Cable Address: Smigworks, Milwaukee

51 East 42nd St., New York 17, N.Y. • 211 W. Wacker Drive, Chicago 6, Ill. • 713 Commercial Trust Bldg., Philadelphia 2, Pa. • 238 Main Street, Cambridge 42, Mass. • Beelch Equipment Co., Milwaukee 3, Wis. • Brandeis Machinery & Supply Co., Louisville 8, Ky., & Evansville, Ind. • Clyde Equipment Co., Portland 9, Ore., & Seattle 4, Wash. • Mines Eng. & Equip. Co., San Francisco 4, Calif. • Interstate Equipment Co., Statesville, N. C. • Rish Equip. Co., Charleston 22, & Clarksburg, W. Va.—Roanoke 7, & Richmond 16, Va. • Wilson-Wessner-Wilkinson Co., Knoxville 8, & Nashville 6, Tenn.

These belts outwork 6 trains!

IN a Virginia quarry, a system of four Goodyear conveyor belts—one of which you see here—carries limestone that six donkey-engined trains used to carry laboriously from quarry to plant. The conveyor system, designed by the G.T.M.—Goodyear Technical Man—is ¾-mile long, instead of the six miles of track the railway system used. In addition to short-line haulage, the belts have larger ton-per-hour capacity, making stock piling at the processing end easier. Constant flow ends spotty loading. Haulage costs are far lower, too.

You can consult the G.T.M. on any materials-handling problem by phoning your nearest Goodyear Industrial Rubber Products Distributor, or writing Goodyear, Akron 16, Ohio.

We think you'll like "THE GREATEST STORY EVER TOLD"—Every Sunday—ABC Network

GOODYEAR

THE GREATEST NAME IN RUBBER

PIT AND QUARRY, February, 1950. Vol. 42, No. 8. Published monthly by the Complete Service Publishing Company, 538 South Clark Street, Chicago 5, Ill. Subscription price $3 for 1 year in the U. S. and possessions, Canada, Central and South America; elsewhere $3 additional for each year. Single copy 25 cents. Entered as second-class matter February 28, 1932, at the Post Office at Chicago, Ill., under the Act of March 3, 1879.

There's a good reason why..

are near

CEMENT LEGEND

- CEMENT PRODUCING PLANTS
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BEMIS LEGEND

MULTIWALL PAPER SHIPPING SACKS

- SALES OFFICE
- INK MILL
- PAPER MILL
- THREAD AND TWINE MILL
- PACKAGING SERVICE

Bemis

We planned it that way—to give you better bag service . . . quicker delivery . . . closer personal attention. Your bag order goes to a nearby Bemis office and shipment is made from there or a plant conveniently close. Geography is important. It means time and money saved for you.

Not only are Bemis plants *located* to serve you well . . . they are *geared to serve you in every way.* Plant layout or packaging service . . . emergency service . . . whatever your need, we're close at hand to help you. And NOW.

PEORIA, ILL. • EAST PEPPERELL, MASS. • MOBILE, ALA. • VANCOUVER, WASH.
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You can't afford anything but the best

FOR THE HEART OF THE JOB!

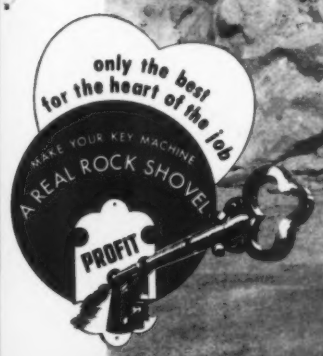
—and the pit is the heart of your job. The mill is no good unless you can feed it. Put the shovel "down" and business stops.

When you buy a shovel you are buying for a *Key Spot* where profits begin. You need every advantage from the standpoint of features that will mean better output and you need design that assures trouble-free operation.

The Northwest Dual Independent Crowd utilizes force other independent crowd shovels waste and assures higher output. The "Feather-Touch" Clutch Control means easier operation. Uniform Pressure Swing Clutches take the jerks and grabs out of swinging and assure accuracy in spotting loads. Cast Steel Machinery Side Frames maintain shaft and bearing alignment. Cast Steel Machinery Bases give solid foundations that resist the shocks of rock digging. The Cushion Clutch relieves all parts under power from shock loads. Here is a combination of advantages that can't be found on any other machine.

Let us give you more details. Plan to have a Northwest in your pit and be sure of a real Rock Shovel.

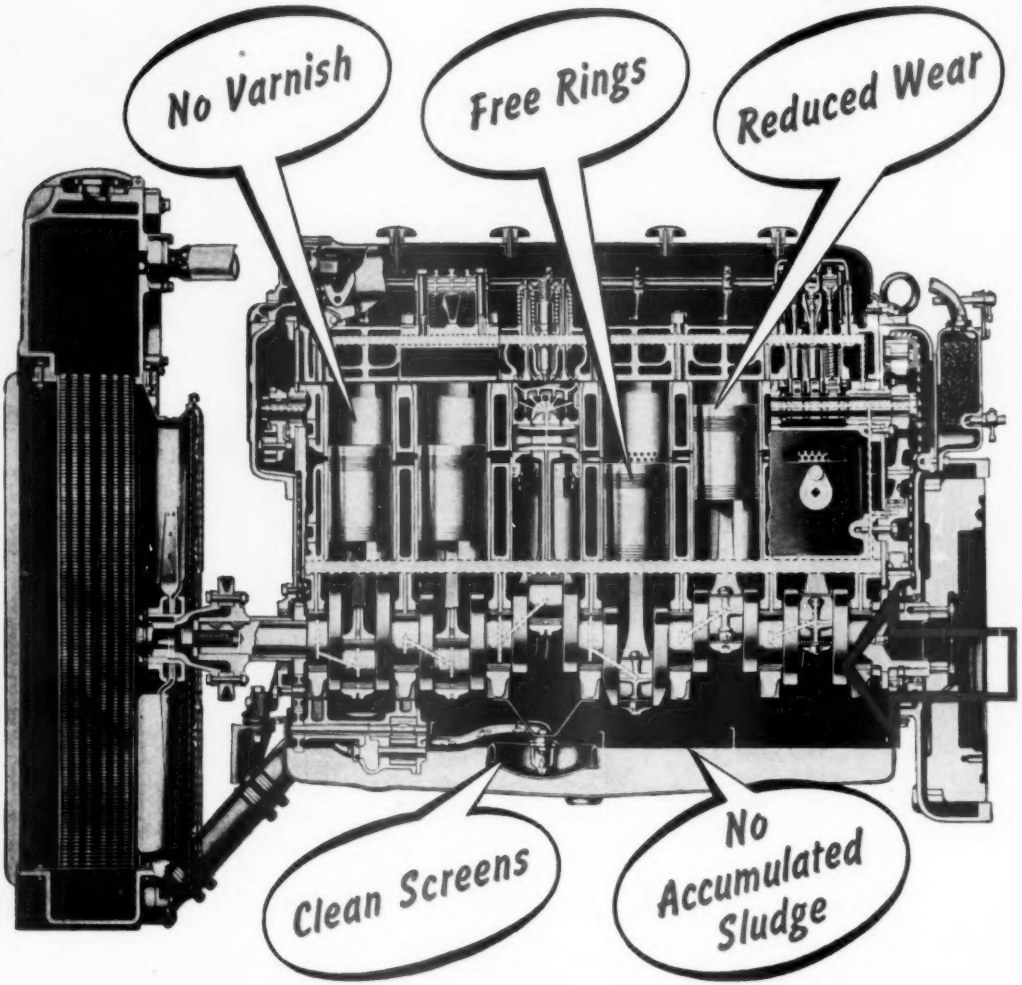
NORTHWEST ENGINEERING COMPANY
1515 Field Building, 135 South LaSalle Street, Chicago 3, Illinois



NORTHWEST

CRAWLER and TRUCK MOUNTED SHOVELS • CRANES • DRAGLINES • PULLSHOVELS

In SEVERE DUTY..
Can Double Engine



SINCLAIR HEAVY

Your Nearest Supplier of Sinclair Products Will Gladly Arrange for Lubrication

New SUPER TENOL Life Between Overhauls

New Sinclair SUPER TENOL is an oil specially developed to eliminate the high maintenance costs so frequently encountered in both types of "severe duty" service: — 1. High temperature, high speed, over-load; and 2. Low temperature, light load, long idle, stop-and-go.

Under these abnormal conditions, operators report new SUPER TENOL has more than DOUBLED the life of their equipment between overhauls.

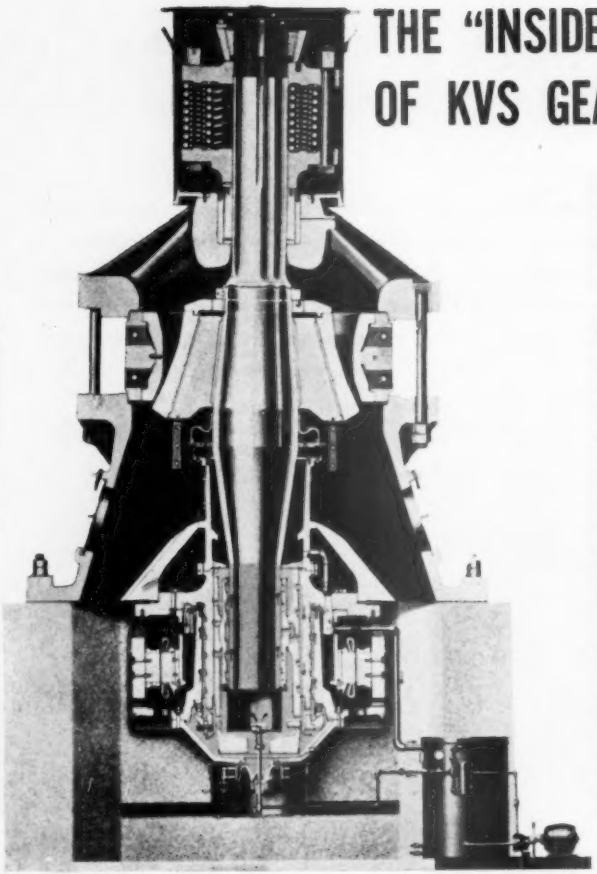
If you operate diesel-powered or gasoline equipment in severe duty service it will pay you to change to new SUPER TENOL now—to keep equipment in operation many more days each year, to save time, labor and money.

DUTY LUBRICANTS

Counsel or Write to Sinclair Refining Company, 630 Fifth Avenue, New York 20, N. Y.

IT COSTS LESS TO OWN THE BEST!

THE "INSIDE STORY" OF KVS GEARLESS CRUSHERS



CUTAWAY DRAWING OF ROLLER BEARING TYPE "S" CRUSHER

The oiling system is the heart of every crusher. When it fails, bearings burn out . . . weeks of valuable time are lost in making replacements . . . work stops . . . and so does income! KVS offers the solution to this ever-present problem with their positive oiling system. Built without "gimmicks" and trick safety devices that all too often fail to work, this system is virtually fool-proof.

A simple gear pump draws oil from a serpentine cooled tank and, under pressure, pumps it through a filter to a compartment below the ball socket bearing. Oil is then forced UP between this bearing and the shaft and overflows to the eccentric and pulley bearings. This floods the roller bearings, and the oil then overflows into the storage tank. A bypass releases the pressure back into the storage tank, thus maintaining a constant and even flow at all times.

It has been proved through countless tests and is, today, the "Heart" of the famous Kennedy Gyratory Crushers. It provides a system that oils vital parts without failure and without depending on someone's memory.

IT'S CORRECTLY DESIGNED TO LAST FOR YEARS

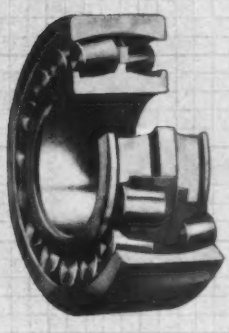
There is no substitute for quality and KVS oiling systems are recognized everywhere that heavy duty crushers are used, as TOPS in their field. They prove, year-in, year-out, that "It Costs Less To Own The Best." Specify KVS and be SURE!

Send for engineering bulletin describing this system

KENNEDY-VAN SAUN MFG. & ENG. CORPORATION

TWO PARK AVENUE, NEW YORK 16, N. Y.

More Power to Lima-Hamilton Power Shovels ...through TORRINGTON SPHERICAL ROLLER BEARINGS



On the power take-off shaft of its shovels, Lima-Hamilton Corporation uses Torrington Spherical Roller Bearings to transmit power smoothly with minimum friction loss and wear.

Under shock loads, barrel-shaped rollers align themselves freely in the spherical outer race . . . can't bind or drag. Even load distribution is secured without alignment adjustments, and maintained under deflection.

Maximum life expectancy results from this combination of self-alignment with tremendous load capacity in Torrington Spherical Roller Bearings. Secure these advantages in your heavy-duty equipment—our engineers will be glad to help.

THE TORRINGTON COMPANY
South Bend 21, Ind. • Torrington, Conn.
District Offices and Distributors in Principal Cities of United States and Canada

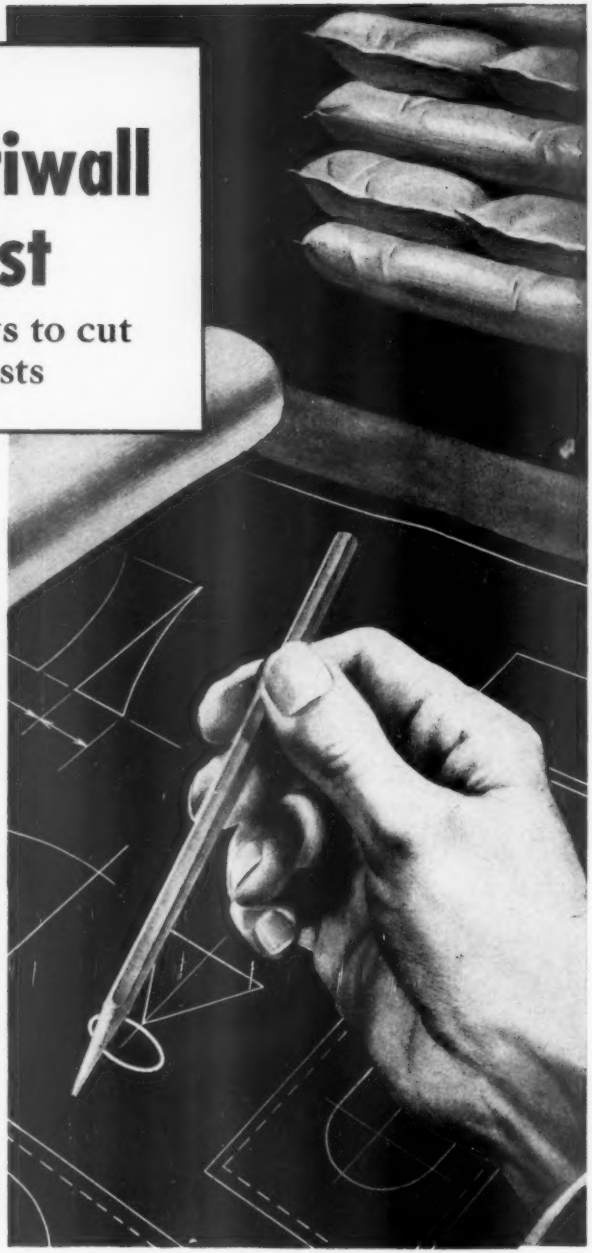
SPHERICAL ROLLER
TAPERED ROLLER
STRAIGHT ROLLER
NEEDLE
BALL
NEEDLE ROLLERS

TORRINGTON *SPHERICAL ROLLER* **BEARINGS**

Your

Union Multiwall Specialist

Knows many ways to cut packaging costs



HOW LONG has it been since an *expert* analyzed your packaging methods?

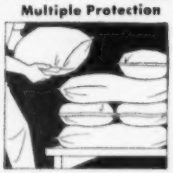
Recent improvements in packaging methods and materials now make Union Multiwall Bags the preferred packaging for many different commodities . . . over 300 in all. They speed up packaging, cut labor and shipping costs, guard against contamination.

Even if you're now using multiwall bags, the Union Multiwall representative who calls on you can give you new ideas that may save you money. For he is backed by the specialized packaging knowledge of America's largest maker of paper bags—with its own forests, the largest completely integrated Kraft pulp-to-bag plant in the world, and skilled engineers and designers.

Let him show you how Union resources and packaging experience can help you!

Multiple Protection

Opens Easily



Prevents Siftage

Empties Clean

UNION Multiwall Bags

UNION BAG & PAPER CORPORATION

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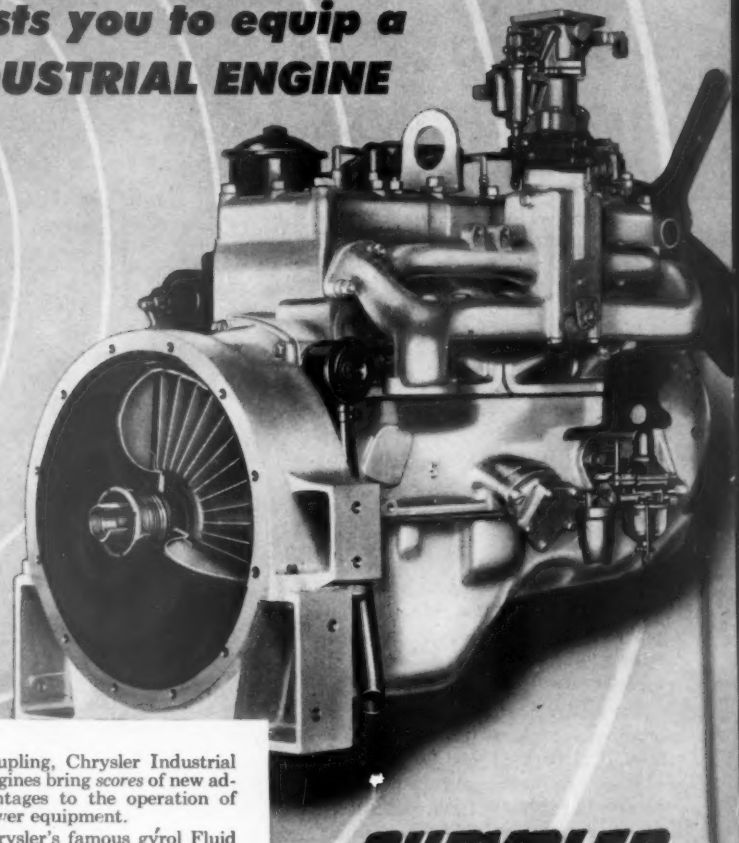
Offices in: CHICAGO, ILL. · NEW ORLEANS, LA. · MINNEAPOLIS, MINN. · KANSAS CITY, MO. · HOUSTON, TEXAS

TRADE MARK UNION

IT'S AMAZING

how little it costs you to equip a CHRYSLER INDUSTRIAL ENGINE *with . . .*

gýrol Fluid Drive!



Does operation of your equipment require frequent clutching and de-clutching?

Is your equipment subjected to damaging shock loads? Is it desirable to speed up your engine close to torque peak with the output shaft turning at a lower speed?

Do shock loads sometimes stall your engine or cause failure of drive train parts? Would gradual oil-smooth acceleration improve your operation?

If your answer is "yes" to any of these questions, better investigate Chrysler Industrial Engines now! With gýrol Fluid Coupling, Chrysler Industrial Engines bring *scores* of new advantages to the operation of power equipment.

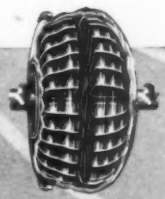
Chrysler's famous gýrol Fluid Coupling has been proved on more than a *million* Chrysler, DeSoto, and Dodge passenger cars and trucks over a period of 11 years. *Proved* on scores of industrial applications.

Its cost is amazingly low! *Actually only a few dollars more than the cost of the conventional flywheel which it replaces!* For more information, see your nearest Chrysler Industrial Engine Dealer, write us, or *mail the coupon today!*

CHRYSLER

Industrial Engines and Power Units

HORSEPOWER WITH A PEDIGREE



As the driver turns inside the sealed steel drum, the confined oil produces a powerful swirling out-thrust. Instantly the Runner receives the impulsion and transmits smooth power to the load.

H-2

INDUSTRIAL ENGINE DIVISION, CHRYSLER CORPORATION
12200 E. Jefferson, Detroit 31, Michigan

Send us full information on Chrysler Industrial Engines with gýrol Fluid Coupling for use on_____ equipment.

NAME _____

COMPANY NAME _____

STREET _____

CITY _____ STATE _____

ITS BACKBONE DEPENDS ON "U. S."

Carrying crushed rock from pit to surge pile, this U. S. Giant Conveyor Belt would soon cause the entire plant to suspend operations if it ever broke down.

But after nearly six years' service, carrying over a million tons a year, the belt is still in first-class condition. The operators expect it to last at least 10 years at full capacity, based on its present performance.

Like all U. S. Rubber Conveyor installations, best results are obtained through close coordinated teamwork between engineers representing the operators, equipment manufacturers, and engineers of United States Rubber Company. This "Three-Way Engineering" is the most successful way to obtain *higher output* at lower costs, whether the installation is large or small, simple or complex.

Today more than ever, profits depend on mechanization. When you replace your present belt, or when you plan a new conveyor system, call in "U. S." engineers. United States Rubber Company, Mechanical Goods Division, Rockefeller Center, New York 20, N. Y.

U. S. Giant Conveyor Belt works 8-10 hours a day, is expected to carry 10-12 million tons in 10 years' service.

Discharge occurs 92 feet above surge pile reclaiming tunnel.

PRODUCT OF U.S.RUBBER SERVING THROUGH SCIENCE

UNITED STATES RUBBER COMPANY

ROCKEFELLER CENTER • NEW YORK 20, N. Y.

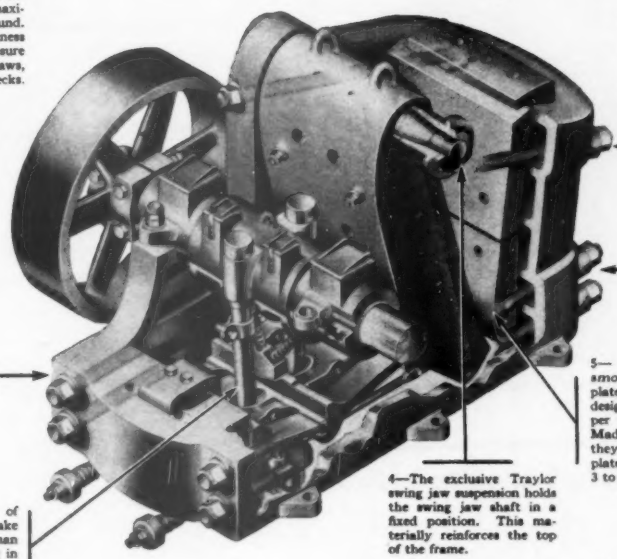
CURVED JAWS...

FOR GREATER CRUSHING EFFICIENCY IN THE TRAYLOR TYPE R JAW CRUSHER

This cut-away of a Traylor Type R Crusher shows clearly the advanced design characteristic of all Traylor-built equipment. Each feature contributes to larger profits through higher production with lower power and maintenance costs. The Type R Crusher, built in five sizes up to 56″ x 72″, is completely described in illustrated Bulletin 123 shown below.

1—The Meehanite* metal frame is of box section design which provides maximum strength per pound. Uniform metal thickness and annealing in sand insure castings free from flaws, shrinkage cracks and checks.

2—Heavy steel reinforcing rods are shrunk in place on each side at the top of the crushing chamber and through the strengthening band at the bottom of the frame.



3—Forged steel rods of extra large diameter make up a very strong pitman which is relatively light in weight.

4—The exclusive Traylor swing jaw suspension holds the swing jaw shaft in a fixed position. This materially reinforces the top of the frame.

5— The *non-chokable, smooth-face curved* jaw plates, of patented Traylor design, keep horsepower per ton requirements low. Made of manganese steel, they outwear conventional plates, often by as much as 3 to 1.

(* Reg. U. S. Pat. Off.)

Write today for your copy of Bulletin 1123. See how curved jaw plates can increase your profits by reducing your crushing costs.

TRAYLOR ENGINEERING & MANUFACTURING CO.
117 Mill St., Allentown, Pa.

Sales Offices: New York, N. Y., Chicago, Ill., Los Angeles, Calif.
Canadian Mfrs: Canadian Vickers, Ltd., Montreal, P. Q.

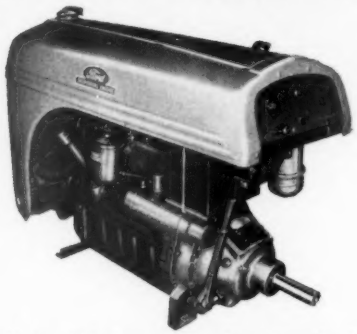
Traylor

Rotary Kilns, Coolers and Dryers
Grinding Mills · Crushing Rolls
Jaw, Reduction and Gyratory Crushers

A "TRAYLOR" LEADS TO GREATER PROFITS

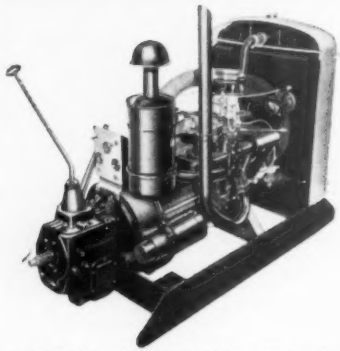
IT'S HERE...

NEW Ford "120" POWER UNIT



Removable dry cylinder liners . . . 3-ring pistons, chrome top ring . . . Moly-chrome valve seat inserts . . . Circulating cooling system with thermostat . . . Replaceable thin shell main and connecting rod bearings . . . Counterbalanced crankshaft . . . Magneto or battery ignition . . . Oil filter . . . Heavy duty oil bath air cleaner.

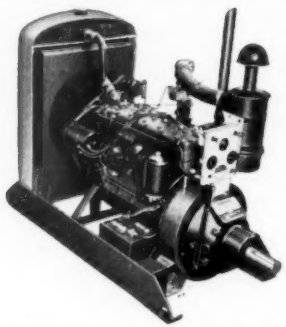
NEW Ford "226" POWER UNIT



Pad mounted oil filter . . . Full length water jacketing . . . Recirculating pressure cooling system with thermostat . . . Counterbalanced crankshaft . . . Heavy duty, replaceable thin shell copper lead bearings . . . High lift camshaft . . . Balanced carburetion (downdraft or updraft) . . . Heavy duty oil bath air cleaner.

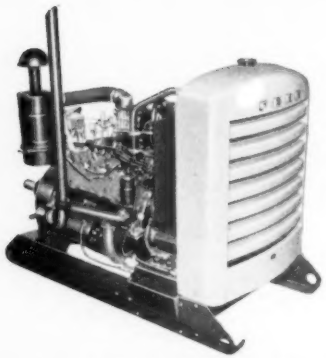
Complete

NEW Ford "254" POWER UNIT



Pad mounted oil filter . . . Recirculating pressure cooling system with thermostat . . . Autothermic pistons with chrome top compression ring . . . High lift camshaft . . . Hard faced cobalt exhaust valve (free type valves) . . . Counterbalanced crankshaft . . . Heavy duty, replaceable thin shell copper lead bearings . . . Balanced carburetion (downdraft or updraft) . . . Air cleaner.

NEW Ford "239" POWER UNIT



Dual water pumps . . . Full length water jacketing *plus* . . . Recirculating pressure cooling system with thermostat . . . Fully counterbalanced crankshaft . . . Replaceable thin shell bearings . . . Moly-chrome valve seat inserts . . . Dual downdraft carburetion . . . Oil filter and air cleaner.

RIGHT for Centrifugal Pumps . . . Arc Welders . . . Air Compressors . . . Cranes and Hoists . . . Winches . . . Railway Cars . . . Generator Sets . . . Crane Loaders . . . Feed Grinders . . . Mechanical Shovels . . . Portable Sawmills . . . Portable Well Drillers . . . Farm Combines . . . Street Flushers . . . Concrete Mixers . . . Portable Grain Mills . . . Irrigation Equipment . . . Log Yarders and Loaders—and many other applications.

Specifications of Ford Industrial Engine Power Units

Model	Cylinders	Bore and Stroke	Displ. cu. in.	Dyn. B.H.P.	Max. Torque	Equipment Available
120	4	3 1/16 x 3 1/4	120	38 @ 2400	92#' @ 1600	Clutch; SAE #5 housing; power take-off; Ford housing; 3- or 4-speed transmission; governor. (Available as closed type power unit or engine assembly.)
226	6	3.3 x 4.4	226	80 @ 2400	182#' @ 1200	Clutch; SAE #3 or #4 housing; power take-off; Ford housing; 3-, 4- or 5-speed transmission; governor. (Available as closed or open type power unit, or engine assembly.)
239	V-8	3 1/16 x 3 1/4	239	85 @ 2400	187#' @ 1600	Clutch; SAE #3 or #4 housing; power take-off; Ford housing with 3-, 4- or 5-speed transmission; governor. (Available as closed or open type power unit, or engine assembly.)
254	6	3.5 x 4.4	254	95 @ 2400	212#' @ 1200	Clutch; SAE #3 or #4 housing; power take-off; Ford housing; 3-, 4- or 5-speed transmission; governor. (Available as closed or open type power unit, or engine assembly.)
337	V-8	3 1/2 x 4 1/8	337	117 @ 2400	257#' @ 1600	Clutch; 5-speed direct-in-fifth transmission; overdrive transmission, direct drive power take-off. (Available as closed or open type power unit, or engine assembly.)

FORD

Industrial Engine Power Units ARE RIGHT 3 WAYS for your job!

1. **RIGHT POWER**—five great models in wide variety of units. Each one ready to run!
2. **RIGHT FEATURES**—all the latest advancements of Ford's famed progressive engineering.
3. **RIGHT SERVICE**—as near as your nearest Ford Dealer, clear around the world.

Line of NEW Ford INDUSTRIAL ENGINE POWER UNITS!

NEW Ford "337" POWER UNIT

Drop forged fully counterbalanced crankshaft, hardened journals . . . Heavy duty, replaceable thin shell copper lead bearings . . . Hard faced cobalt exhaust valves (free type valves) . . . Autothermic pistons, chrome top ring . . . Dual centrifugal water pumps . . . Full length water jackets . . . Recirculating pressure cooling system with thermostat . . . Dual downdraft carburetion . . . Oil filter and air cleaner.

YOUR JOB IS WELL-POWERED WHEN IT'S FORD-POWERED

For Special Literature on Ford Industrial Power Units, use this coupon . . .

Industrial Engine Department

FORD MOTOR COMPANY

DEARBORN, MICHIGAN

● Ford Industrial Power Units are now available in five great models . . . four, six and V-type eight cylinder . . . 120 to 337 cu. in. displacement. *COMPLETE* with radiator . . . instrument panel and S.A.E. or Ford type housings. Foot or skid mounted. Closed and open types. Made throughout to Ford's famed hi-precision manufacturing standards. Completely tested and *READY TO RUN!*

Ford Dealers, Ford District Sales Offices and the Ford Industrial Engine Department are at your service in developing engineering recommendations showing how Ford Industrial Power Units can be most effectively applied to your job. *Mail coupon below for Ford Industrial Power Unit Folder.*

Send me comprehensive literature about the new Ford Industrial Power Units. Address: **Industrial Engine Dept., Ford Motor Co., Dearborn, Mich.**

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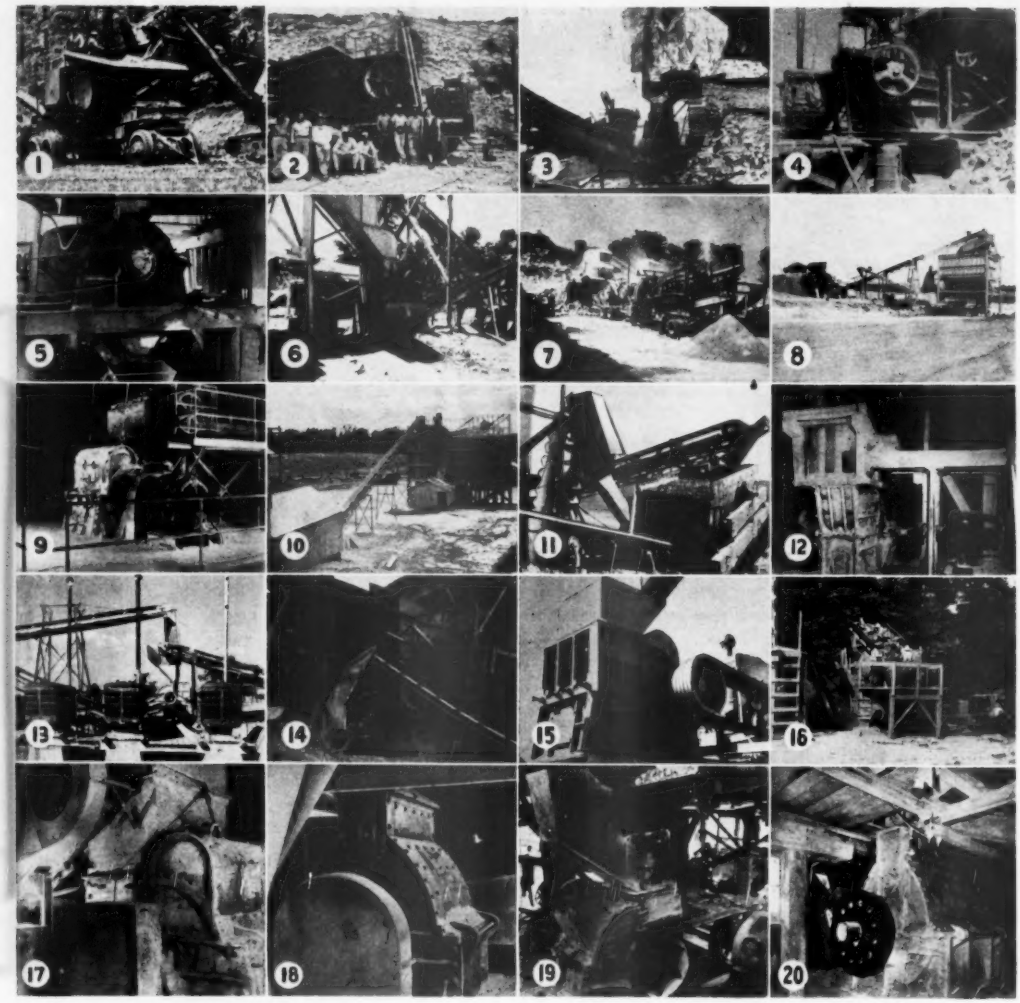
(Please print)

STREET_____

CITY_____ STATE_____

66 YEARS OF CRUSHER ENGINEERING TO GIVE YOU EFFICIENT PLANT SERVICE

GRUENDLER EQUIPMENT ON THE JOB



1. Washington, D. C. Highway Dept.
2. Marshall Carr, Neodosha, Kan.
3. Universal Marble, Thornwood, N. Y.
4. B & H Quarry, Winchester, Ill.
5. Chas. Langford, Galliton, Tenn.
6. McCullin Rock Products, Springfield, Mo.
7. Riverview Quarry, St. Louis, Mo.
8. Doyle & Potteroff, Springfield, Ill.
9. Marquette Cement, Des Moines, Iowa
10. Long Rock Co., Princeville, Ill.
11. Louisa County Plant, Ottumba, Iowa
12. America Silica Sand, Ottawa, Ill.
13. Hall & Riley, Bunceton, Mo.
14. Shenandoa Limestone Co., Capon Road, Va.
15. Burnnup & Simms, West Palm Beach, Fla.
16. Mayestown Quarry, Mayestown, Ill.
17. Dewey Portland Cement Co. Linwood, Iowa
18. Dewey Portland Cement Co. Linwood, Iowa
19. Crystal Lime Co., Wrightwood, Cal.
20. Welden Bros. Iowa Falls, Iowa

WRITE FOR FREE BULLETIN and PLANT DESIGNS RECOMMENDATIONS

GRUENDLER

CRUSHER *and* PULVERIZER CO., Dept. PQ2 ST. LOUIS 6, MO.

Announcing—ALL NEW—ALL PROVED

INTERNATIONAL TRUCKS

Every model *Heavy-Duty Engineered* to save you money!

Now International puts you squarely in the driver's seat—with a complete new line of completely new trucks!

Every single new International Truck from 4,200 to 90,000 pounds GVW is heavy-duty engineered to give you lower maintenance and operating costs.

Let the facts tell that story:

Fact No. 1: for 18 straight years Internationals have led in sales of heavy-duty trucks (16,001 pounds and over GVW). The men who buy heavy-duty trucks buy on a basis of performance. They choose Internationals.

Fact No. 2: the same management men, the same engineers, the same test experts, the same production men who kept Internationals first in the heavy-duty field, have developed *every* new International Truck.

Every model offers new high standards of comfort and easy handling

Here's relaxing roominess! Here's all 'round visibility! Here's a comfortable, adjustable seat! Yes—you get everything in the Comfo-Vision Cab!

You have full visibility in the one-piece Sweepsight windshield. That convenient two-cluster instrument panel puts everything right in front of your eyes.

And when the truck starts to roll, you find that new Super-steering right for position, and positive control.

AND TALK ABOUT FEATURES . . .

Every new International Truck offers new improvements throughout!

NEW Functional Styling—Smart brawny appearance combines modern design with extreme practicability.

NEW Engine Accessibility—Special fender and hood design provides extra working space between engine and fenders—hoods easily removed.

NEW Brake Systems—hydraulic or air. Faster-acting, surer-stopping, longer-wearing—more efficient braking with less effort.

NEW Outdoor Visibility—Giant, one-piece scientifically curved Sweepsight windshield, large side windows, two rear windows.

NEW Valve-in-head engines—All test-proved for greater power, greater economy, greater stamina, greater efficiency.

NEW Steel-flex Frames—Designed to provide an extra margin of strength combined with the right amount of flexibility.

NEW Comfo-Vision Cab—Model for model "the roomiest cab on the road"—with comfort cushions, adjustable seats, controlled ventilation.

NEW Specialized Transmissions—Types and gear ratios for any job . . . three-speed, four-speed and five-speed with direct drive or overdrive in 5th.

NEW Load-balanced Wheelbases—Shorter wheelbases for standard body lengths provide better load distribution, better maneuverability.

NEW Super-Maneuverability—More positive control from a more comfortable position; new wide-tread axles assure the shortest practical turning circle and greater stability.

NEW Rear Axles for any job—Wider, sturdier rear axles—hypoid single-speed, double-reduction and two-speed with electric shift.

NEW Cradle-Action Springs—Longer springs for greater riding ease . . . stronger springs, sturdier mounting and new spring suspension for longer life.

Plus dozens of new features and refinements throughout every truck!

Proved in the mountains!

Proved on the Belgian Blocks!

Proved in heavy snowfall!

Proved on the twist course!

Every model proved under actual operating conditions!

There wasn't any price tag on the test program to prove the new International Trucks.

It was directed by men whose life work has been to develop better truck transportation. Test drivers were chosen as carefully as you do any key workers. All-outdoors was used for proving grounds. Laboratory analysis tests were backed up by track tests, then by actual road tests. Test convoys were run 'round the clock.

That's why every all-new, all-proved International Truck is right and ready for you *now!*

Call or visit your International Truck Dealer or Branch

International Harvester Builds McCormick Farm Equipment and Farmall Tractors . . . Motor Trucks Industrial Power . . . Refrigerators and Freezers

Tune in James Melton and "Harvest of Stars" NBC, Sunday afternoons

INTERNATIONAL TRUCKS

INTERNATIONAL HARVESTER COMPANY CHICAGO

A SAFER, SOUNDER CABLE

WITH NEOPRENE INNER-BELT AND FILLER *COMBINED*

The new construction of this Securityflex cable—combined inner-belt and filler of a new, heat-conducting Neoprene compound—greatly increases its operating safety factor. Under extreme overload conditions, the inner-belt dissipates heat and provides cooler operation.

Other features—extra-tough, *flame-resistant* outer jacket, seine twine reinforcing that *resists tearing* and engineered construction that *eliminates kinking*—contribute to the better performance and longer life of this new Securityflex cable.

New inner-belt construction operates cooler under extreme overloads

ANACONDA

ANACONDA *Securityflex* **CABLE**

1 Simplified, full-floating charging hopper assembly. Improved seal design assures low maintenance cost.

2 Improved overflow-type water tank; non-breakable gauge glass and non-freeze valves.

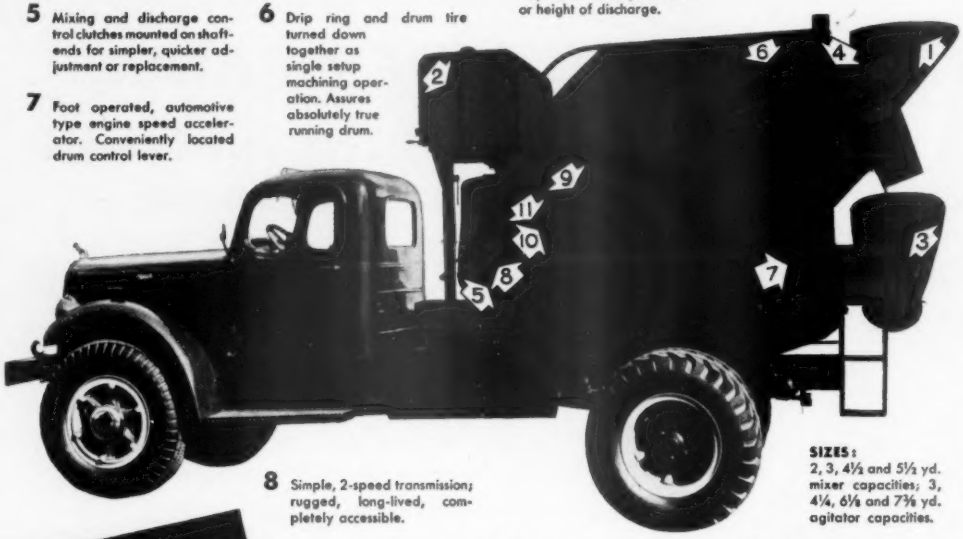
3 Rigid, quick - detachable chute support bracket. Easily swung clear when discharging into hoist buckets; quickly adjustable for slope of chute or height of discharge.

4 Renewable drip ring is quickly, easily, accurately replaced and locked on drip ring flange by 12 cap screws.

5 Mixing and discharge control clutches mounted on shaft-ends for simpler, quicker adjustment or replacement.

6 Drip ring and drum tire turned down together as single setup machining operation. Assures absolutely true running drum.

7 Foot operated, automotive type engine speed accelerator. Conveniently located drum control lever.



8 Simple, 2-speed transmission; rugged, long-lived, completely accessible.

9 Chain-driven drum reduces weight without loss of strength.

10 Trunnion bearing design, with double race bearings for maximum flexibility.

11 Fabricated, all-steel drum-head. Conical section with steel reinforcing ribs absorbs shocks.

SIZES: 2, 3, 4½ and 5½ yd. mixer capacities; 3, 4¼, 6⅛ and 7⅜ yd. agitator capacities.

NEW!

THE 1950 LINE OF *BLUE BRUTES* HI-UPS

Gives You Every Money-Saving Feature!

Men like you helped design this newest Blue Brute Hi-Up! Ready-mix operators throughout the world were consulted, and their very practical suggestions were valuable aids to Worthington-Ransome's century-plus of experience.

The result is an ultra-modern truck mixer — not only a technical triumph in lightness of weight without loss of strength, but an on-the-job performer unequalled for trouble-free operation, easy accessibility of wearing parts and low cost maintenance. The following typical testimonial shows you why:

Our trucking foreman is particularly complimentary of the new Hi-Up's well designed transmission system, including the transmission itself. Our shop service men are complimentary of the unit's ability to properly mix and discharge low slump concretes. We compliment you on a well engineered and well designed truck mixer.

SOUTHERN MATERIALS CO., INC.
J. W. Roberts, *Vice President*

Give the new Hi-Up's features a good going-over — one by one. You'll agree that they add up to more concrete at lower cost — and that *there's more worth in a Blue Brute*. For further facts, see your nearby Worthington-Ransome Distributor, or write for Bulletin.

WORTHINGTON

Worthington Pump and Machinery Corp.
Construction Equipment Department
Harrison, New Jersey

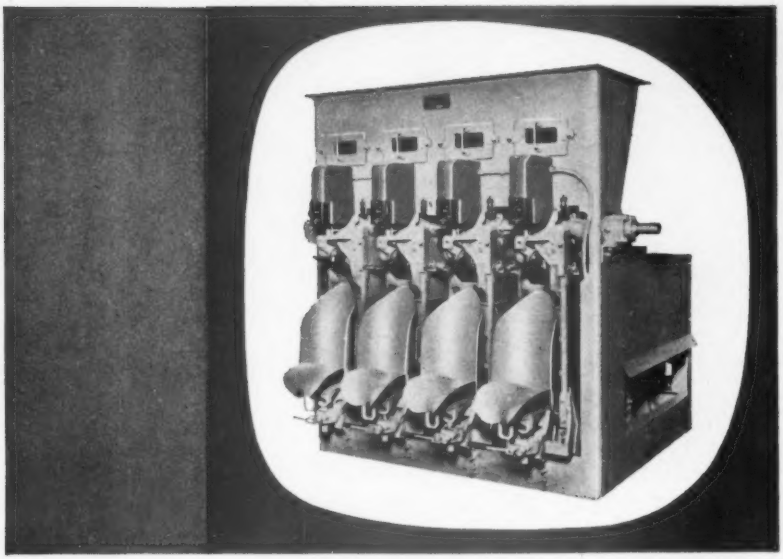
Distributors In All Principal Cities

BUY BLUE BRUTES

RO-1

IF IT'S A CONSTRUCTION JOB, IT'S A BLUE BRUTE JOB

here's how you can deliver your product in a CLEAN bag . . .



You're sure of delivering your cement in clean bags when you use St. Regis Multiwall Paper Bags packed with the St. Regis 150-FC Valve Bag Packer. A "delayed discharge" feature enables trapped air to escape from the bag—keeps cement in.

This St. Regis Multiwall and Packer team not only keeps bags clean on your packing line, but saves time. Cuts man-hour costs and speeds output. A single packer can fill up to 1200 bags per hour.

For detailed specifications on the St. Regis 150-FC Packer, write or call your nearest St. Regis office.

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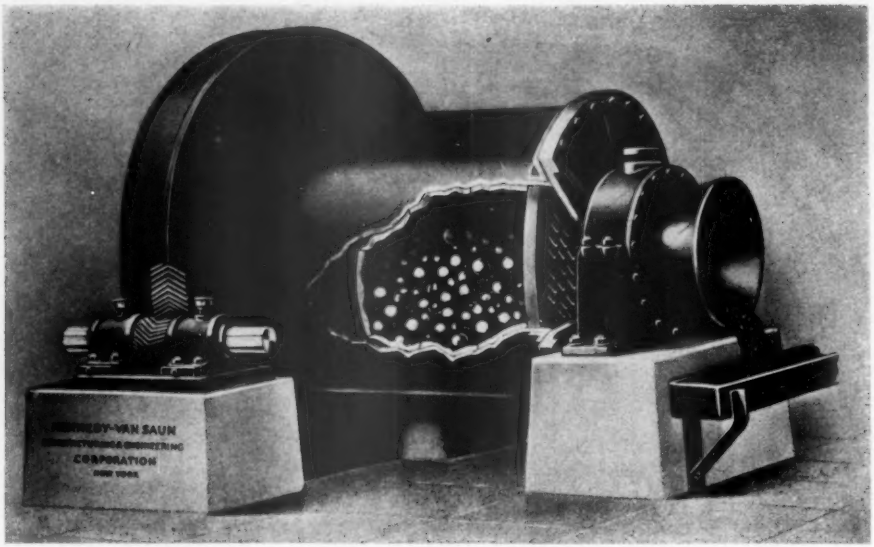
YOU BUY PROTECTION WHEN YOU BUY MULTIWALLS

IT COSTS *LESS* TO OWN THE BEST!



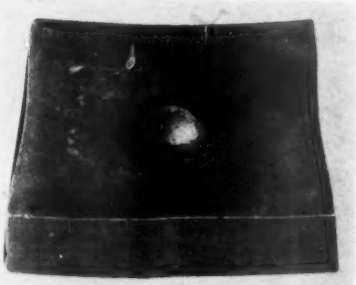
KENNEDY BALL MILL

Featuring

HERRINGBONE DUPLEX GEAR DRIVE
XX HERCULITE STEEL BALLS AND LINERS

A power-packed ball mill; driven by a motor direct-connected to shaft through a flexible coupling. Circumferential herringbone duplex gear drive. Pinion shaft mounted in roller bearings. Uses XX Herculite Steel balls and liners, the toughest, hardest substance known. Cutaway drawing shows mill filled with balls for pulverizing. Note slots in discharge end screen specially slotted to prevent clogging. Built for continuous heavy duty at economical operating cost.

Send for bulletin describing the KVS line of exclusive Ball, Rod and Tube Mills.



XX HERCULITE STEEL BALL
forced through steel plate under pressure from 400 ton press. NO mark shows on steel ball proving extreme durability and hardness.

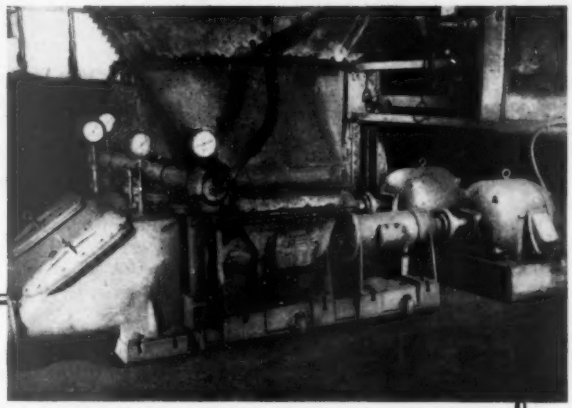
KENNEDY-VAN SAUN MFG. & ENG. CORPORATION

TWO PARK AVENUE, NEW YORK 16, N. Y.

FULLER KINYON PUMPS

for

PULVERIZED COAL



OTHER MATERIALS CONVEYED BY F-K PUMPS

Arsenic dust
Asphalt filler dust
Bag fume
Barium sulphate
Barytes
Catalysts
Cement (Portland)
Cement raw materials
Chalk
Clay (dried)
Coke dust
Copper converter dust
Dextrine
Dolomite (pulverized)
Flue dust
Fly ash
Fuller's earth
Gluten feed
Graphite
Gypsum
Kaolin
Lime
Limestone (pulverized)
Manganese
Manganese dioxide
Ores (pulverized)
Phosphate rock (pulverized)
Rock dust
Siliceous powders
Soda ash
Sodium bicarbonate
Starch
Sugar

PUMP YOUR COAL LIKE A FLUID

The efficient, clean, safe, low-cost method of conveying pulverized coal. F-K Pumps have been used many years for conveying pulverized coal for metallurgical furnaces for gasification and by-product recovery; nodulizing, pelletizing, and briquetting in metallurgical processes, in which an ore is mixed with the fuel. Also for conveying for the firing of rotary kilns in the cement industry.

Fuller-Kinyon Pumps are absolutely safe from explosion hazards, as the quantity of air used, for aerating the material being conveyed, is less than one percent of that necessary for combustion. They require very little supervision or maintenance. Conveying pipe lines can be carried overhead, on simple hangers, or buried underground.

If you have a pulverized material conveying problem, why not write us. We'll be glad to work with you.

FULLER COMPANY, CATASAUQUA, PA.

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FULLER

FULLER-KINYON, FULLER-FLUXO, AIRVEYOR, F-H AIRSLIDE CONVEYING SYSTEMS . . . ROTARY FEEDERS AND VALVES . . . ROTARY COMPRESSORS AND VACUUM PUMPS . . . INCLINED-GRATE COOLER . . . DRY PULVERIZED-MATERIAL COOLER . . . MATERIAL-LEVEL INDICATOR . . . AERATION UNITS . . . AIRLIFT . . . CONSTANT-HEAD FEEDER . . . SLURRY VALVES . . . MOTION SAFETY SWITCH . . . SAMPLERS

P-110

21 Smart ideas

ONLY FORD GIVES YOU A CHOICE OF V-8 OR SIX

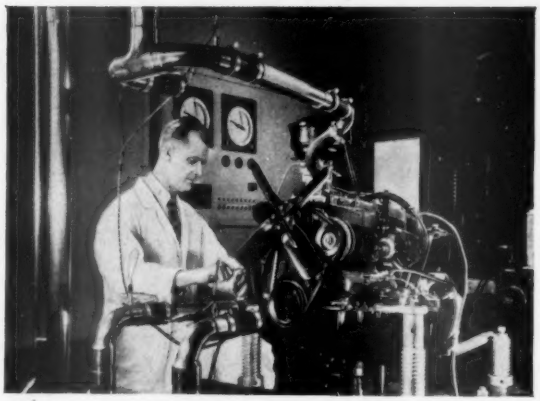
The Ford Truck line for 1950 gives you new models, new ratings, new power, new features—21 smart ideas in all, to help cut trucking costs.

NEW MODELS like the F-3 Parcel Delivery, which expand the 1950 Ford Truck line to over 175 models. This wide selection means that you should see your Ford dealer for the right truck for you, no matter what you haul. New G.V.W. rating increase on Series F-6 and F-8.

NEW POWER like the brand-new 6-cylinder Rouge 254 truck engine. Thus, for 1950 you have a choice of four great engines, two Sixes, and the only two V-8's in trucking. Only Ford gives you a choice of V-8 or Six.

NEW FEATURES like the full air brakes now available on the 1950 F-8 Big Jobs . . . single-speed axles for the F-6 and F-8 . . . new Synchro-Silent transmissions . . . new features that make driving safer and easier.

New models! New ratings! New power! New features! You'll find all these smart ideas in Ford Trucks for 1950. And you'll find the smartest idea of them all . . . Bonus Built construction which means big reserves of strength and power. That's why a 1950 Ford Truck is the smart buy for you. Your Ford Dealer can arrange quick delivery on most models. See him today!



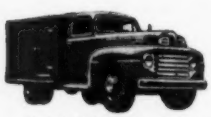
NEW 110-HORSEPOWER SIX! The new Rouge 254 makes the 1950 Ford F-6 the most powerful 6-cylinder Ford Truck ever built. The thoroughly proved 254 has Free-Turn exhaust valves, Autothermic pistons, chrome-plated top piston ring, High-Lift camshaft, and many other power-producing, cost-saving, smart ideas. A brand-new, 4-speed Synchro-Silent transmission engineered for quiet operation, easy shifting and long life is standard with the new 254 engine.

Model F-2; 5,700 lbs. G.V.W. Express or Stake

Model F-1; 4,700 lbs. G.V.W. Panel, Pickup or Stake

Model F-3; 6,800 lbs. G.V.W. Express or Stake

Model F-5; 14,000 lbs. G.V.W. Wheelbases; 134, 158 and 176 in.



Model F-4; 10,000 lbs. G.V.W. with Duals

Model F-3 Parcel Delivery Wheelbases; 104 and 122 in.

America's No. 1 Truck Value!

No. 1 in sales gains. Registration figures show Ford Trucks are scoring bigger sales gains than *all other makes combined*, based on the latest three months, compared to the first three months of 1949!

No. 1 in choice of engine types. Only Ford gives you a choice of V-8 or six-cylinder engine design.

No. 1 in experience. Latest registrations prove that 2,003,155 Ford Trucks on the road have marked up 18,567,865 truck years of experience . . . a record equalled by no other truck.

No. 1 in long life. Using latest registration data on 6,106,000 trucks, life insurance experts prove Ford Trucks last longer.

No. 1 in value. Over 175 models! The only V-8's in trucking! Two 145-h.p. Big Jobs rated up to 39,000 lbs. They're Bonus Built which means big reserves of strength and power.

Ford Trucks Cost Less Because—

for 1950!*

—IN A FULL LINE OF OVER 175 TRUCK MODELS!

NEW F-7 REAR BRAKES! Big 15" x 5" hydraulic, dual cylinder. High torque self-centering action both forward and reverse.

NEW AIR BRAKES available on the Ford Series F-8 Big Job combine smooth flexibility with immediate, positive action.

NEW WHEELBASES! Three of them for 1950 Ford Trucks. Series F-5 and F-6 now have a 176-in. wheelbase for bodies in the 15-ft. range. The 145-horsepower Ford Big Jobs have added two new wheelbases to get a total of five. First, a 147-in. wheelbase for tractors and dump trucks. Second, a 178-in. wheelbase for 15-ft. bodies.

NEW PARCEL DELIVERY! Forward control chassis with grille, windshield and quarter-windows. You add your choice of bodies. Available in Series F-3 and F-5 (Special order).

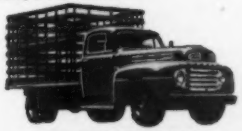
New single-speed rear axle for F-8 • New extra-heavy duty clutch with 254 engine • Million Dollar Cab • Air Wing door glass ventilators • Level Action cab mounting • New Double Channel frame for Big Jobs • Gyro-Grip Clutches • New single-speed axle for F-6 • Roll Action Steering • New extra H. D. drive line with 254 engine • Quadrax rear axles • 4 engines—choice of V-8 or Six • New heavy duty, 3-speed Synchro-Silent transmission available for F-1 thru F-3 • Choice of over 175 models • Bonus Built construction.

One of many 145-horsepower Ford F-8 Trucks operated by Michigan Motor Freight Lines, Inc. of Detroit, Mich.

Model F-5 Cab-Over-Engine 14,000 lbs. G.V.W.

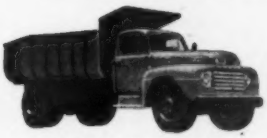
Model F-5 School Bus Chassis Wheelbases: 158 and 194 in.

Model F-6 Cab-Over-Engine 16,000 lbs. G.V.W.



Model F-6; 16,000 lbs. G.V.W. Wheelbases: 134, 158 and 176 in.

Model F-7; 19,000 lbs. G.V.W. 35,000 lbs. G.T.W.



Model F-8; 22,000 lbs. G.V.W. 39,000 lbs. G.T.W.

FORD TRUCKS LAST LONGER

Using latest registration data on 6,106,000 trucks, life insurance experts prove Ford trucks last longer!

It's got what it takes *for the jobs that you've got*

OVERBURDEN or pay material—stone or gravel—long hauls or short . . . here's a hauling unit that's ready to take on the toughest jobs you can give it. All it wants is to keep busy. With *power, ruggedness, dependability, big capacity*—and a reasonable amount of maintenance—it will roll up for you multi-thousands of hours of low-cost hauling.

It's a "Cat" DW10 Tractor and matching Athey PD-10Q rock trailer, that can move 15-ton loads of rocky stuff at a 24.5-mph. clip. On this Illinois limestone quarry operation, pictured below, an average of 8½ trips an hour are made on a 3000-foot one-way haul. Production averages 127 tons per hour—or about 1010 tons per 8-hour day. (Note that load can be dumped to either side. Hydraulic ram operation makes it easy.)

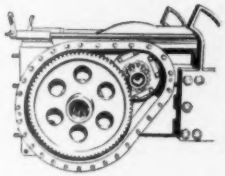
If you're interested in increased production, Diesel economy and outstanding day-after-day performance, you just can't beat an outfit like this. Behind it are a responsible manufacturer and a widespread, splendidly equipped dealer organization that can provide quick and efficient service at all times, at reasonable cost, no matter where you are located. For further information, see your "Caterpillar" dealer. Meantime, USE THE COUPON—*now*.

CATERPILLAR TRACTOR CO. • PEORIA, ILLINOIS

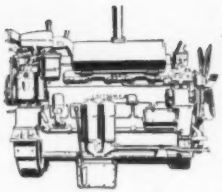
NOTE. *DW 10s are also available with matching "Caterpillar" W 10 Wagons and No. 10 Scrapers.*

Look under the hide

OF THE "CAT" DW10

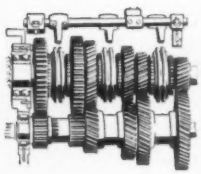


SPEEDS UP TO 24.5 MPH. Three complete ranges of speed are available with a choice of final drive gears. Many operators keep all three sets in stock to fit their DW10s to the job, ground conditions or haul distances. Differential-type rear end, combined with steering brakes, enables the DW10 to "walk" through soft spots on the fill. Full-floating drive axles are an assurance of dependable performance under the roughest of conditions.

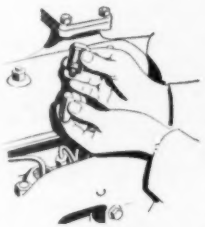


ALL-"CATERPILLAR" BUILT. Undivided manufacturer responsibility! Engine, transmission, clutch and final drive—all are 100% "Caterpillar" built and designed for each other. The engine, 115 honest horsepower, is known the world over for its dependable and economical performance. Its own independent gasoline starting engine is itself started electrically, or can be started by hand in case of battery failure. The engine is the heart of your operations . . . use the best.

EASY SAFE OPERATION. One way to get high earthmoving production is to design equipment for safety and ease of operation. Four-wheel stability; hydraulic booster steering; selective-acting air brakes on the DW10 and trailed unit; hydraulically controlled spring-mounted seat and unexcelled visibility—these add up to all-important reasons why operators prefer DW10s.



QUALITY BUILT. Typical of the quality designed into the DW10 is the constant-mesh, easy-to-shift transmission. A gear-type pump forces oil over the upper shaft to lubricate effectively the transmission on any grade. To insure long life, a large replaceable filter element guards against destructive abrasive materials. Just one of the many features that can boost production for you.



EASY TO MAINTAIN. "Caterpillar" has always designed for ease of service. Fuel injection equipment that can be replaced like spark plugs, with no adjustments required; a metallic-lined double-disc flywheel clutch that can be removed without disturbing engine or transmission—these are just two of many reasons why owners report full satisfaction. Hundreds of well-equipped "Caterpillar" dealers, each within easy job distance, constitute another reason why DW10s boost hauling profits.

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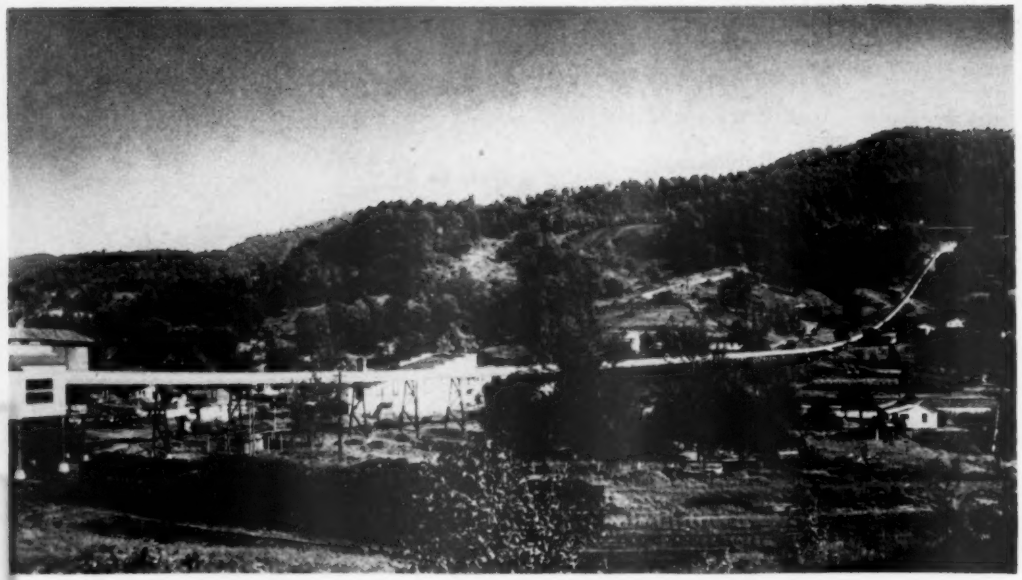

Republic Cuts Costs By The Mile!

● **That's a mile of Republic Rubber Conveyor Belting** cutting across the wooded landscape above. It's one of the world's longest continuous decline conveyor belt installations and a substantial money saver when it comes to reducing handling costs!

Republic built this belt for the Pruden Coal & Coke Company at Pruden, Tennessee, where it is used to convey the entire output of the mine. The coal moves straight from the hillside mine portal, down a 300-foot decline and is delivered across the valley to the washing plant.

Imagine the savings that result from this Republic installation!

The belt is mildew-proofed by Republic's exclusive Provar process. It's particularly immune to the wearing action of the coal. Its use has eliminated all traffic problems, since one man controls the entire operation by simply pressing buttons.

Perhaps, there is a cost-saving idea for you here. Contact your nearby Republic Distributor and see.

Whether your job is large or small, he's ready with expert advice that means savings for you — the same kind of savings that Republic's Distributor in Jellico, Tennessee, the McComb Supply Company, made available here.

Remember, Republic Rubber has been the specialist in mechanical rubber goods for more than 48 years, and every product made is matched to give you the longest and most economical service.

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McComb Supply Company
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View From Kiln Feed Platform Between The Kilns

CAPACITY UNLIMITED!

Operated by gear reducer, driven by variable speed motor. Rotation of kiln may be increased or slackened, as desired. Entire operation controlled to keep pace with production needs.

Illustration shows two large KVS kilns with self aligning bearings. These kilns available in single or multiple units, built to meet your exact specifications.

Let a KVS engineer review your plant needs and recommend the proper design and size kiln to meet your needs. Long life and dependable service distinguish *all* KVS products. It's the users who say "It Costs Less To Own The Best."

Send for bulletin describing
KVS Kilns, Coolers & Dryers

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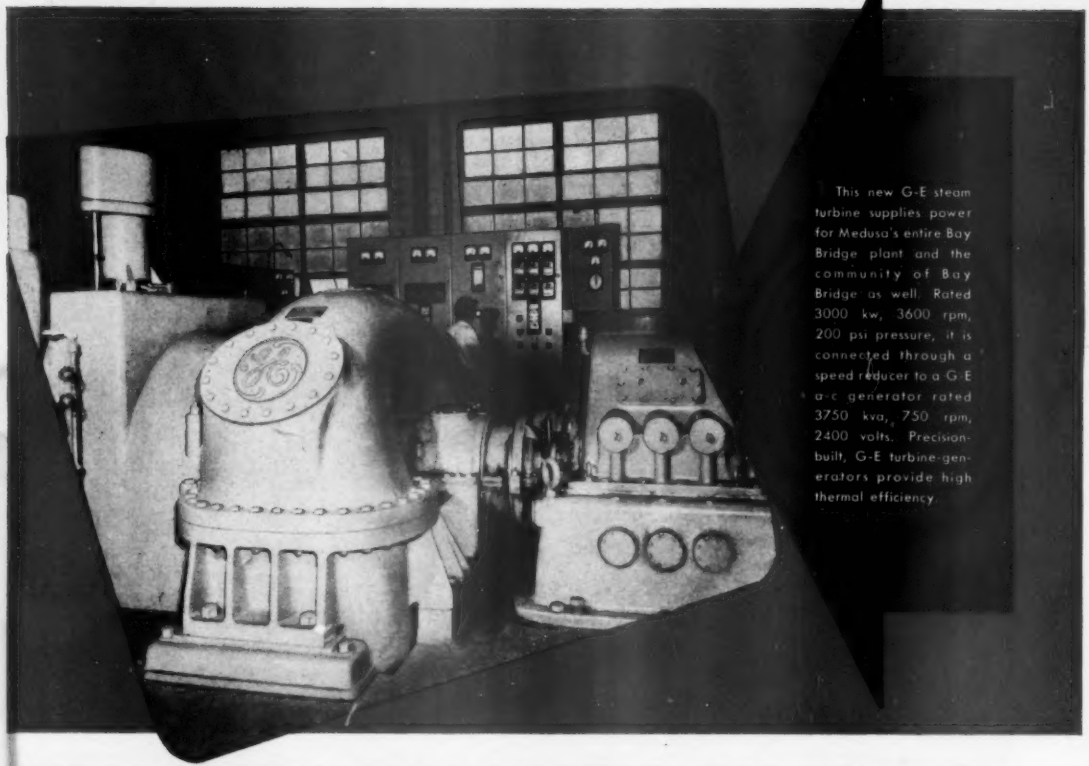
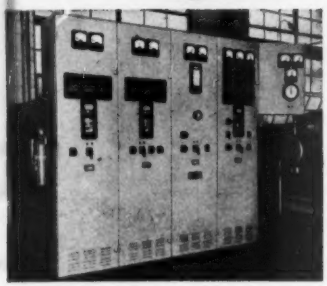
TWO PARK AVENUE, NEW YORK 16, N. Y.

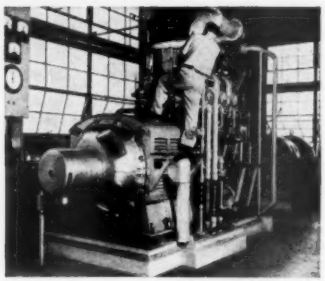


This new G-E steam turbine supplies power for Medusa's entire Bay Bridge plant and the community of Bay Bridge as well. Rated 3000 kw, 3600 rpm, 200 psi pressure, it is connected through a speed reducer to a G-E a-c generator rated 3750 kva, 750 rpm, 2400 volts. Precision-built, G-E turbine-generators provide high thermal efficiency.



2 For the power distribution system, the plant uses this G-E 2400-volt Type MI-6 Metal-Clad switchgear, a co-ordinated, easily-installed unit, completely metal-enclosed for personnel safety. G-E Metal-Clad switchgear, in a wide range of ratings, contains incoming line and feeder breakers that insure adequate interrupting capacity.

3 This 7-panel G-E Limitamp high-voltage motor control line-up controls five 200-hp motors in the dry-grind tube mills and two 300-hp motors for the pulverizers. Elsewhere, a 750-kva G-E unit substation steps down 2400-volt power to 480 volts for small-motor and lighting use. G-E unit substations minimize voltage drop.



4 For emergencies, additional standby capacity is provided by two 375-kva diesel engine-driven G-E generators (one shown), each with a 5-kw exciter. Use of many thousand feet of G-E interlocked armor cable throughout the plant for power and control leads eliminated the need for costly conduit installations.

You can put your confidence in—

GENERAL ELECTRIC

650-2

MEDUSA INSTALLS NEW POWER PLANT—CUTS FUEL COST!

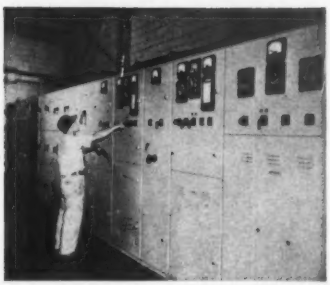
General Electric Turbine-Generator at Bay Bridge mill utilizes waste-heat steam more efficiently—eliminates coal-firing of two boilers—supplies power for five kilns and all other plant equipment on waste heat alone!

To reduce excessive operating and maintenance costs, the Medusa Portland Cement Company recently replaced the power generating system at its Bay Bridge, Ohio, plant with a completely new "packaged" General Electric system, including a turbine-generator and allied equipment.

Previously, four kilns and attendant equipment were powered by the old turbine using steam delivered by four boilers, two using waste heat and two coal-fired. Now, with the installation of the more efficient G-E turbine equipment, the entire plant operates on power generated from waste heat alone. Coal-fired boilers are eliminated, fuel costs are reduced!

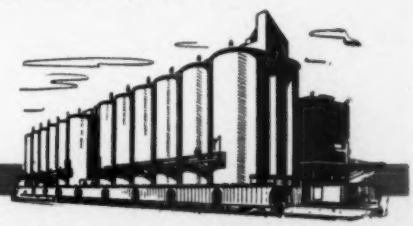
Complete with co-ordinated G-E equipment for power distribution and control, the Medusa installation is another example of how well a G-E "packaged" electrical system pays off.

You, too, can cut operating and maintenance costs all along the line by consulting an experienced G-E engineer on your electrical problems. *Apparatus Department, General Electric Company, Schenectady 5, N. Y.*



5 Another G-E switchgear unit combined with Cabinetrol® is used in conjunction with two standby generators as well as a bank of 1500-kva transformers. Combining simplicity and convenience, Cabinetrol centralizes in one location the control of a number of 15 to 50-hp motors that are used in the plant in crushing and grinding operations.

Now is the time—when you are in the planning stage for plant improvement—to call in a G-E specialist in cement mill electrification.



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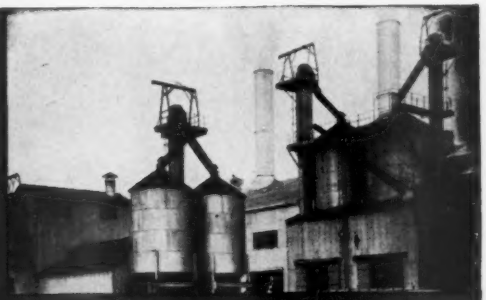

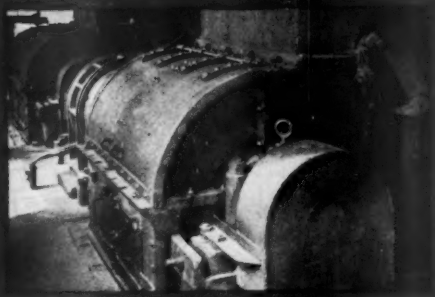

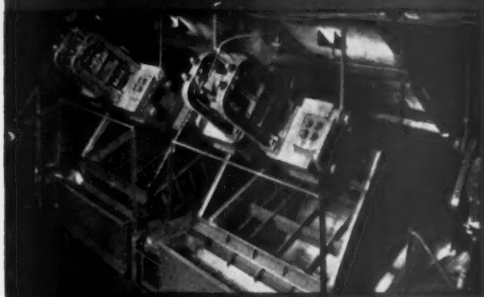

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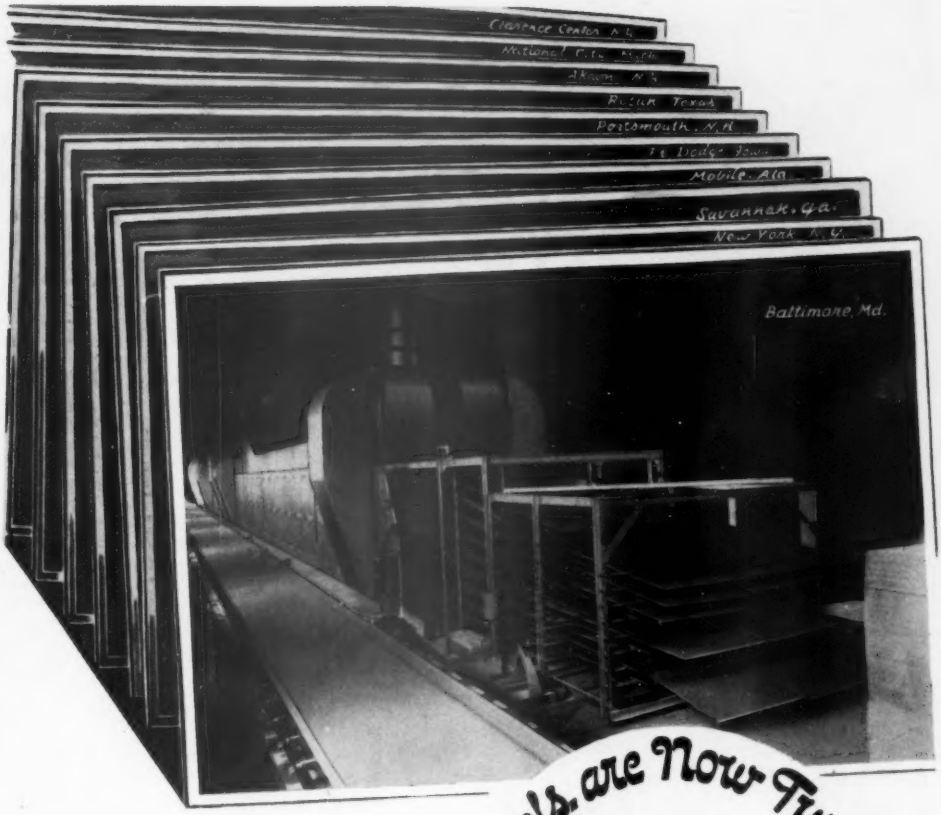

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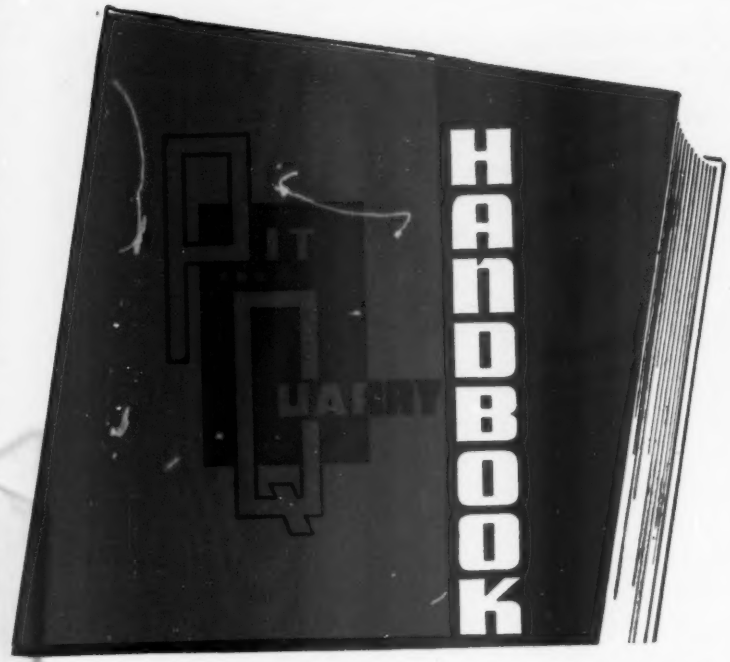
Continuous Dryers
Since 1902



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Directory Section listings appear two ways — (1) alphabetical by companies, (2) geographical by plants. You get company names, officers, location of plants, their capacity, and the names of the men who do the buying.

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When pulverizing materials to medium finenesses . . . all passing 10-mesh to 95% passing 100-mesh . . . the Raymond Low Side Roller Mill provides maximum economy and output, because of these advantages:—

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SINCE 1887

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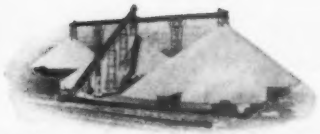
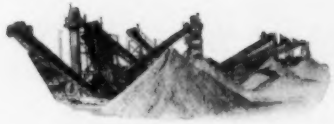


SILAS MASON bought 1,280 feet of Pioneer Conveyors for the Fort Randall Dam Project. Conveyors unload 275 tons of aggregate an hour from railroad cars and build stockpiles. A Pioneer tunnel conveyor feeds the batch plant.



MITTRY BROTHERS used the following Pioneer equipment on the big Hulah Dam Project: an Apron Feeder, Jaw Crusher, Vibrating Screens, Triple Roll Crusher, Dehydrator, Bucket Elevator, Revolving Scrubber, Storage Bins and over 1,100 feet of Conveyors.

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Now, at last, with the help of a remarkable 52-page handbook, you can solve your conveyor problems as well as most experts. This handbook tells how wide, how long your conveyor belt should be. It shows correct angle of incline, spacing of idlers, motor horsepower required.

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It also illustrates the complete line of Pioneer Belt-Conveyors . . . Portable, Semi-Portable and Stationary. Send for your free copy today. Or contact your nearest Pioneer distributor. 3¢ postage on an envelope, with the coupon enclosed, may be the best investment you ever made. PIONEER ENGINEERING WORKS, 1515 Central Avenue, Minneapolis 13, Minnesota.

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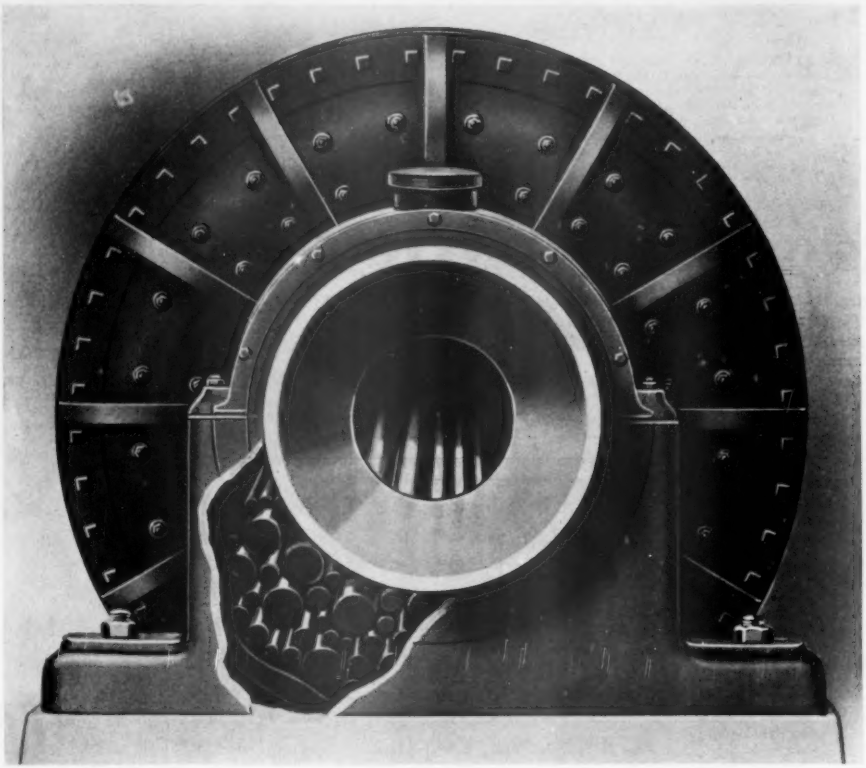

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One feature that distinguishes a KVS Rod Mill is the scientific—and absolutely uniform—length of their rods. Just the proper length, long enough but not too long, to prevent lifting or climbing.

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These mills represent the most advanced type of engineering and construction. They're tough, tenacious and tremendous in output and lasting qualities. Send for bulletin describing the KVS Rod, Tube and Ball mills. The first-hand information will quickly convince you that "It Costs Less To Own The Best."

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SYMONS Cone Crushers and Symons Vibrating Screens, proven throughout the world in the most efficient stationary rock, ore and mineral processing plants, are being used in increasing numbers by successful operators of Portable and Semi-Portable Plants. Here are a few of the ever growing number of installations of Symons units in Portable and Semi-Portable materials producing plants.

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Symons 3-ft. Standard Cone Crusher with power unit and conveyor mounted on a trailer—Locally built —Union County, Oregon.

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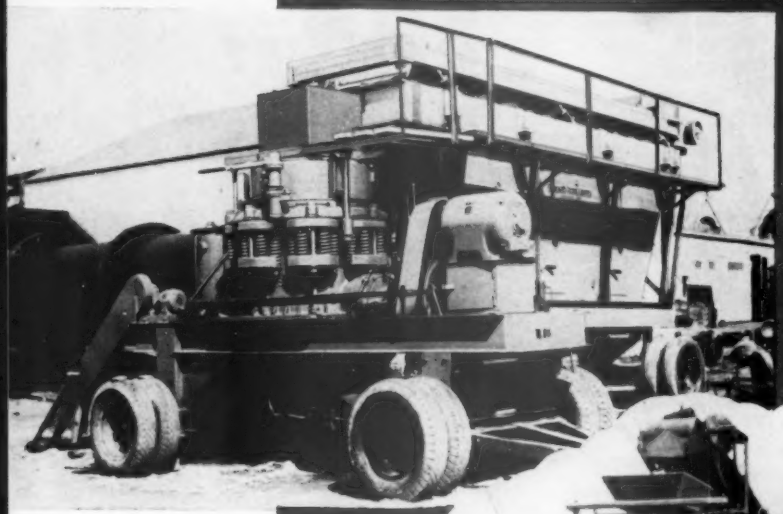
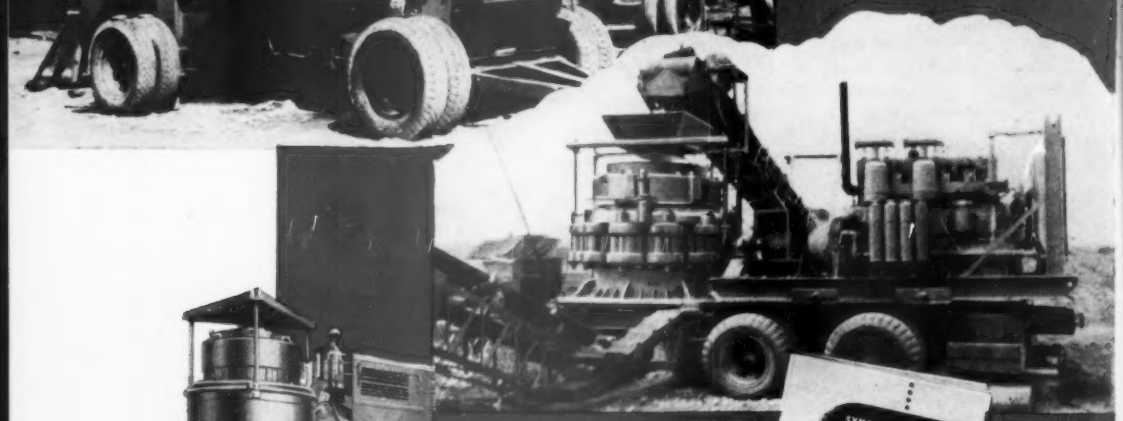


Symons 3-ft. Standard Cone Crusher and 4' x 16' double deck Symons Vibrating Screen, electric driven, wheel-mounted aggregate plant — Locally built — Standard Paving Company, Ontario, Canada.

Symons 4½-ft. Standard Cone Crusher, Diesel engine powered, big capacity crushing unit — Locally built — Canyon Construction Co., Caldwell, Idaho.



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Vol. 42 FEBRUARY 1950 No. 8

PIT AND QUARRY

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MANUFACTURING PAPER BAGS

Recent Products from the A & S Packaging Laboratory

SHUR-CLOSE VALVE — Tests made in plants all over the country have proved that SHUR-CLOSE valve bags insure less dusting when packing and less sifting when packed. Consumers are requesting shipments in SHUR-CLOSE valve bags because they prevent waste; while operating men in packing rooms claim SHUR-CLOSE bags eliminate objectionable dust.

STA-STAK BAG — It's the specially designed outer creped sheet that does the trick. STA-STAK creped paper takes the skid and slip out of piling, stacking and palletizing. The STA-STAK construction gives greater resiliency to withstand shocks and general abuse better than ordinary multiwall bags. And they handle easier . . . the crinkly surface provides a hand-hold that workmen appreciate.

SUPER-GLOSS FLOUR BAG — The SUPER-GLOSS flour bag was developed by the A&S packaging laboratory with the help of the country's largest mills. The long fibered white kraft sheet combined with a blue kraft liner makes the toughest 25 lb. flour bag on the market. The SUPER-GLOSS clay coated sheet gives this bag exceptional whiteness and keeps ink on the surface, producing a sparkling, appealing shelf package.

ARK-TONE PRINTING — A&S has also perfected developments kindred to the field of paper bag making. The new A&S ARK-TONE PRINTING is a case in point. No other commercial bag printing can touch this ARK-TONE process for printing fidelity. Users report increased sales of ARK-TONE printed bags because strong, sharp, clear colors give package greater shelf appeal. ARK-TONE process printing is the only type of commercial bag printing to combine product reproduction and color brightness.

PLASTO-PAK BAG — This is the very latest development from the A&S packaging laboratory. PLASTO-PAK bags have a polyethylene kraft liner which affords completely moisture-proof protection to hygroscopic materials. Many acids and other strong chemicals, when packed in the PLASTO-PAK bag fail to attack the liner. A special "Electro-Seal" (patent applied for) closes off the needle holes at the bottom of the bag . . . no other multiwall has this feature.

YOU don't build a good name over night. It only comes as the result of doing a good job for a long time. After that, people begin to expect quality workmanship from you and bring their business to you for that reason.

Since 1859, we have been building a fine reputation throughout American industry and are proud of our claim . . . "The oldest name in paper bags." Styles and designs can be copied, but the integrity of a company and the quality built into its products cannot be imitated.

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editorial

We Are Paying For Good Highways

JUST what is needed to overcome the apathetic attitude of the public toward our urgent need for more and better highways is not apparent at this time. Anyone using our highways, and that means nearly all of us at one time or another, can see these needs. Competent authorities have repeatedly pointed out that taxpayers can save countless millions every year by prudent investment in a modern highway system designed to carry today's traffic. Instead we carry on costly operations to maintain a "hodge-podge" of makeshift roads originally superimposed on ancient "horse-and-buggy" routes. These facts were again emphasized by Charles M. Upham, engineer-director of the American Road Builders' Assn., in a recent address at a meeting of highway commissioners.

"We are paying for good highways, but accepting inadequate and obsolete highways," Mr. Upham declared in an address stressing that "true economy lies in stepping up construction to cut down maintenance costs." The latter, he emphasized, were 72 cents for every dollar spent on road construction in 1948, as against a ratio of 42 cents for maintenance for every construction dollar spent in 1930.

LIKENING motor vehicle use and highway construction to twins who started life together in the decade of the '20's, when mass production of automobiles was inaugurated, Mr. Upham said:

"For ten years these companion components of our economic life paralleled one another. From 1920 to 1930, motor vehicles increased from 9,000,000 to 26,000,000. Highway construction expenditures rose from $640,000,000 to $1,500,000,000. Unfortunately, in 1930 this partnership came to an abrupt end. The construction program dropped from the $1,500,000,000 peak reached in 1930 to $600,000,000 in 1935. This was not too serious a factor at the time, as there was also a loss during the three worst years of the depression of about 2,500,000 motor vehicle registrations. But, over the long pull, this dissolution of a natural partnership was a body blow. It meant a set-back from which the highway program has not recovered."

In the 15 years covered by the depression '30's and World War II, "motor vehicle use outstripped its twin, the highway program, so far that today we are paying the maximum penalty," Mr. Upham asserted.

"As a result, we have the freakish situation under which modern traffic is hobbling along on a hodge-podge of makeshift roads and streets designed for less traffic, lighter vehicles, and much slower speeds than those of today. The taller twin is trying to wear his much smaller brother's clothes, and the results are disastrous. The backward twin must catch up — and soon."

POINTING out that 40,000 miles of highways a year are wearing out on the Federal-aid system alone, and that only about one-half of this amount is being built annually while maintenance crews struggle with this situation and spend 50 percent of mounting maintenance costs on surface work covering antiquated highways, Mr. Upham said:

"We are like a man on a treadmill. For every step we take forward, we wind up two paces to the rear. Today, there is a $41 billion deficiency in our highway construction program. We should be spending at least $3 billion a year if we are to close the gap which is 16 years wide and so deep that it is apparent to every motorist in America. At the present rate of increase in highway construction expenditures, it will be five years before the needed minimum annual expenditure of $3 billion is reached. The sooner we start closing the gap, the sooner will the tangible and lasting benefits of such a policy become apparent and redound to the best interests of all our people."

Another New Department

IN this February 1950 issue of PIT AND QUARRY we present to our readers a new monthly feature "From the State Capitals," which is a summary of the important actions of our various state legislatures of direct interest to nonmetallic minerals producers. Included will be information on construction plans, highway bond issues and lettings, gas tax increases and diversions, air and stream pollution measures, vehicle load and weight limitations, etc. Such information has, until now, been presented more or less haphazardly in separate news items and articles. This new monthly feature will, we believe, round out the contents of PIT AND QUARRY and make it much easier for our readers to find the type of information they are most interested in. Our readers are now kept advised in other departments and throughout the magazine of Washington developments, labor conditions, association activities, and other news of interest to them.

IN considering the addition of a new department to an already highly departmentalized publication we carefully weigh the advantages and disadvantages. Only if the advantages far outweigh the disadvantages is this step taken. Some of our readers may feel that we are making PIT AND QUARRY unnecessarily complicated and may refer back to 10, 20 or 30 years ago, when it was much less so. If they do, they may remember that business was also much less complicated in those days. About all producers had to worry about then was the amount of business available, the competition encountered in getting their share of it, and the ability to produce at a low enough cost to show a profit. Few then had given much thought to such things as minimum wage rates, interstate shipments, pensions, labor-management relations, etc.

We are actually making this more and more diversified information available to our readers without sacrificing any of the space devoted to the important news, new machinery developments, operating, technical and administrative articles and other important information which always has been and will continue to be the backbone of our editorial content.

Walter E. Trauffer

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Engineers and Machinery Manufacturers

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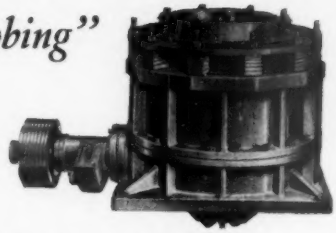

LONGER LIFE. Kue-Ken jaw plates wear 5 to 10 times longer because fast-wearing rubbing and abrasive action is eliminated. Saves costly replacements.

LIGHTER WEIGHT, HIGHER SPEED. Exclusive. Kue-Ken design permits 30-40% saving in crusher weight, 50-60% higher crushing speed. Kue-Ken Crushers have greater capacity, turn out bigger volume and more uniform product with less power.

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MORE PRODUCTION WITH LESS POWER. Kue-Ken Crushers using the exclusive Kue-Ken principle of "crushing without rubbing" give 2 to 3 times greater capacity than old-style crushers with less horsepower, substantially reducing operating cost.

GET THE FACTS. Write today for Gyratory Bulletin 604 or Jaw Crusher Bulletin 605.

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LOW HEADROOM—18-inch crusher only 30¼" high, 3-ft. crusher 45" high. TAKES CHOKE FEED of hardest rock—no feeders required. Other exclusive Kue-Ken features described at left. Sizes, 18" and 3-ft.

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Pictured is No. 90, 36" x 20", showing oil pump and filter side. Perfect lubrication of all mechanism in oil-tight housing stops wear, requires attention only twice a year. Automatic features give complete protection against lubrication failure and overloading. A miser for power, a giant for production. All-steel frame is three times stronger than cast iron, weighs only half as much. Can be choke-fed—flood it with rocks and keep it full. Other models from 12" x 7" to 42" x 25".

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news of the industry

PIT AND QUARRY

U. S. Gypsum Launches $1,000,000 Expansion Plan At Sweetwater, Tex., Plant

To help supply the critical need for building materials in the Southwest, the United States Gypsum Company is planing to enlarge and improve its manufacturing facilities at Sweetwater, Tex. Construction has already begun on buildings which will cost a total of more than $1,000,000, it was announced.

The Sweetwater plant, called the largest of its kind in the Southwest, annually produces approximately $12,000,000 worth of gypsum wallboard, gypsum lath, gypsum sheathing and other related materials. This output, however, was found inadequate to supply the rising demand in this area; and to relieve the shortage the company has entered upon a three-point program including a major plant addition, installation of new equipment, and inauguration of improved production methods.

According to company spokesmen, the expanded facilities are expected to be in operation by the middle of this year.

Calaveras Cement Celebrates Silver Anniversary of Founding

On January 13, 1950, the Calaveras Cement Company observed the twenty-fifth anniversary of its incorporation. During the course of the year the company plans to commemorate several of the important dates of its early history.

The firm was incorporated in 1925 for the purpose of developing newly-discovered limestone deposits in the Mother Lode area of the Sierra Nevada Mountains in California.

During the past quarter of a century, guided by its founder and president, William Wallace Mein, Calaveras Cement Company has advanced steadily in importance as a Western producer of Portland cement.

Currently its gross sales are approaching the mark of $5,000,000 annually. Calaveras main offices are in San Francisco, the plant is in San Andreas, and the principal marketing area is California's great Central Valley.

"If You Lost Money in '49 Get a Tax Refund!" A timely and authoritative article on this important subject appears in the CONCRETE MANUFACTURER section of this issue of PIT AND QUARRY.

Officials of the Pacific Coast Aggregates, Inc., San Francisco, Calif., announced that the firm had leased 1,221 acres of its property between Livermore and Pleasanton, Calif., to the Hancock Oil Company for oil and gas exploration and drilling. The land is adjacent to the aggregates concern's Eliot plant, where production will continue unaffected by the Hancock operations.

Coming Events

February 6-9, 1950—Chicago. 30th annual meeting, National Concrete Masonry Association, Hotel Sherman.

February 12-16, 1950—New York. Annual meeting, American Institute of Mining and Metallurgical Engineers, Statler Hotel.

February 20-22, 1950—Chicago. 46th annual convention, American Concrete Institute, Edgewater Beach Hotel.

February 22-25, 1950—San Francisco. 42nd annual convention, American Concrete Pipe Association, Hotel Fairmont.

March 2-4, 1950 — Washington. Annual convention, Autoclave Building Products Association (formerly Sand Lime Brick Association), Hotel Statler.

March 6-9, 1950—Cincinnati. 47th annual meeting, American Road Builders' Association, Netherland Plaza Hotel.

May 11-13, 1950—Hot Springs, Va. Annual spring convention, National Lime Association, The Homestead.

Utco Products Perlite Plant Operating at Salt L. City—Crushing Plant Planned

Utco Products Company of Salt Lake City, Utah, manufacturers of masonry cement, interior and exterior stucco, terrazzo aggregates, and marble chips, recently began operating its new perlite processing plant.

Designed by Utco's own staff, the new plant has an expanding unit which is a long rotary kiln with a capacity of more than one ton of raw ore per hour. Currently the plant is turning out four products—plastering aggregate, concrete aggregate, loose-fill insulation, and trowel coat fines. All are marketed under the registered name of "Aggra-Lite" and are distributed through the intermountain region by Morrison-Merrill & Co.

Utco owns and operates its own deposit of perlite ore, located along the Union Pacific Railroad right-of-way near Milford, Utah. Over two miles long and one-half mile wide, the deposit is of uniform quality and the ore does not require selective mining. It is considered one of the largest deposits of high-grade uniform ore in the United States. The material is known as a semi-lively ore, yielding a pure white product which is hard and free from excess fines.

Ore is presently being crushed at the Salt Lake City plant, but plans call for the installation of a crushing and screening plant at the deposit. Here the ore will be sized to meet specifications for plastering and concrete aggregate. The new facilities will have a capacity of 10 carloads per day and will be in operation by June.

$3,000,000 Office Building Scheduled by 3M at St. Paul

Plans for the construction of a $3,000,000 office building by the Minnesota Mining & Manufacturing Company have been announced by R. P. Carlton, president.

Another part of the firm's nationwide expansion program is a two-story, block-long manufacturing plant now under construction in St. Paul. It is scheduled for completion next fall and will cost more than $2,000,000.

1949 Construction Volume Passes $10 Billion Mark To Set All-Time Record

F. W. Dodge Corporation reported that contracts awarded for building and engineering works in the 37 states east of the Rocky Mountains last year totaled $10,359,250,000, to show a gain of 10 percent over 1948 and to establish a new all-time dollar volume contract record in the corporation's construction news reporting regions.

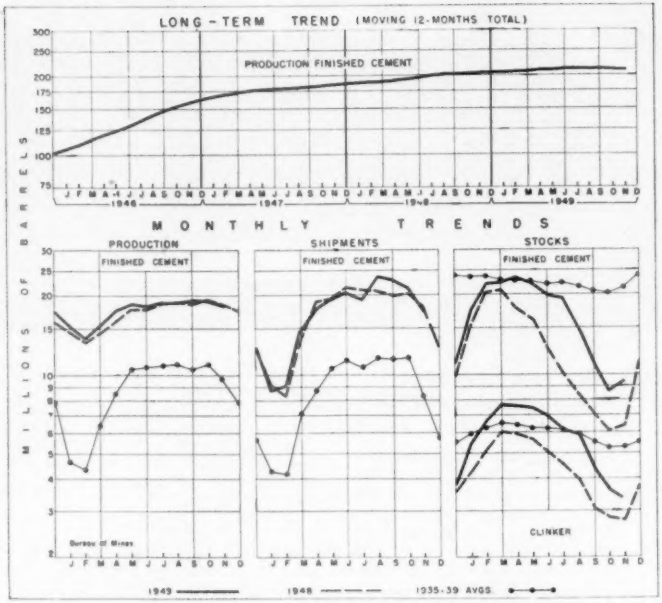
Gains late in the year brought the total of nonresidential awards to within 1 percent of volume in this classification reported in 1948, the drastic recession in manufacturing building and moderate declines in commercial building awards offsetting substantial increases in hospital and institutional building, office buildings and similar structures used by government agencies, educational and science building and religious building. The year's nonresidential volume was $3,643,909,000 in the area east of the Rockies.

Public agencies increased contract outlays for nonresidential building during the year by 23 percent, while private nonresidential awards dropped 11 percent from the previous year's total.

Residential awards established a new all-time record of $4,239,386,000 or 17 percent more than that reported for the previous year. Private residential awards increased 13 percent, while awards for residential building by government agencies climbed 109 percent over the figure of the previous year and added 4 percent to the over-all residential volume increase.

There was a marked upswing in multiple-housing awards last year, apartment-house contract volume totaling $1,121,641,004—59 percent higher than in 1948. Single-family houses built to owners' orders showed a 10 percent increase, and single-family houses built by operative builders for sale or rent climbed 8 percent during the year.

Heavy engineering awards totaled $2,475,955,000 in the 37 states last year or 15 percent more than in the previous year, with private engineering contract volume showing a 50 percent gain over 1948 and public engineering volume reflecting a 9 percent gain.



SUMMARY—The portland cement industry produced 18,040,000 barrels of finished cement in November, 1949, as reported to the U. S. Bureau of Mines, a decrease of 2 percent as compared with the output in November, 1948. Mill shipments totaled 17,269,000 barrels—a decrease of 5 percent from the November 1948 figure, while stocks of 9,340,000 barrels were 46 percent greater than the total for the same month of 1948. Clinker production during November, 1949, amounted to 17,854,000 barrels—a decrease of 3 percent as compared with the corresponding month of the previous year.

PRODUCTION—The output of 18,040,000 barrels of finished cement in November, 1949, came from 147 plants located in 35 states and Puerto Rico. During the same month of the preceding year, 18,435,000 barrels were produced from 147 plants. Clinker production decreased 3 percent as compared with the November, 1948, total.

SHIPMENTS—Mill shipments of 17,269,000 barrels decreased 5 percent as compared with November, 1948, totals. The demand for cement, as indicated by mill shipments, declined when compared with the previous month (October, 1949)—21,277,000 barrels. Shipments of cement were greater in nine districts and lower in ten districts than those reported in November, 1948. The changes range from a decrease of 28 percent in the Indiana-Kentucky-Wisconsin district to an increase of 23 percent in the Texas district. An increase of 11 percent was recorded in the Puerto Rican district for November, 1949.

STOCKS—Finished cement stocks of 9,340,000 barrels on November 30 were 46 percent above the November, 1948, figure, while clinker stocks as of the same date amounted to 3,337,000 barrels—an increase of 20 percent.

A.I.M.E. Division Meets At Tampa for 4-Day Session

Several hundred of the country's leading engineers converged on Tampa, Fla., on November 9, 10, 11 and 12 to attend a meeting of the Industrial Minerals Division of the American Institute of Mining and Metallurgical Engineers at the Tampa Terrace Hotel.

The extraction and uses of fluoride, sandstone, phosphates, kaolin, and other industrial minerals were subjects under discussion during two days of technical sessions, at which 16 technical papers were presented.

The final two days of the meeting were devoted to field trips through Florida's fabulous phosphate mining areas which, in 1948, produced 5,000,000 long tons of phosphate concentrate totaling approximately 65 percent of the world's production. Included were visits to the Noralyn Mine and plant of the International Mineral and Chemical Corporation and the Bonney Lake Table plant and wet storage of the Davison Chemical Corporation, as well as the belt flotation of the Coronet Phosphate Company. The DuPont and Humphreys corporations and the Camp Concrete Rock Company's operations were also visited by the engineers.

Among the authors of the technical papers presented on November 9 and 10 were R. O. Vernon and J. L. Calver of the Florida Geological Survey, who presented papers on *The Geology of Florida* and *The Development of Florida's Mineral Industry*, respectively. R. B. Fuller of the International Minerals and Chemical Corporation discussed *Phosphate Mining in Florida;* and R. C. Specht of the University of Florida Experiment Station presented a paper on the effect of Florida's streams on the phosphate rock industry's waste disposal activities.

An Industrial Minerals Division luncheon was held on November 9, and a banquet on the following evening.

U. S. Lime Products Buys Basic Magnesium Equipment

Purchase by the U. S. Lime Products Corporation, Los Angeles, of certain processing units of the war-built Basic Magnesium plant at Henderson, Nev., has been approved by the War Assets Administration.

The purchaser has been utilizing the Henderson facilities for calcining its product under a lease agreement from the state of Nevada, which purchased all assets from the federal government early in 1949.

U. S. Lime began operations at Sloan, Nev., in 1912, and erected burning facilities in 1927. Its largest quarrying operations are now at Apex, about 18 miles north of Las Vegas.

Fischer Lime & Cement Co. Effects Reorganization As Family Trusteeship Ends

William N. Fry Jr. has been named president of the Fischer Lime & Cement Company, of Memphis, Tenn., succeeding Lee T. McCourt, who becomes chairman of the board of directors.

At the same time W. S. Walters was promoted to executive vice-president to succeed Mr. Fry. John D. Moran and W. F. McGee continue as vice-presidents, T. I. McRee as secretary and treasurer, and Charles A. Lewis Jr. as assistant secretary and treasurer.

In the wholly-owned subsidiaries, Fischer Steel Corporation and Clay Products Company, Mr. Walters became president, Mr. Fry executive vice-president, Ted Sams, vice-president, Mr. McRee, secretary and treasurer and Mr. Lewis assistant secretary and treasurer.

Mr. Fry also was elected president of another subsidiary, the Greenville Sand & Gravel Company, with Mr. Walters as executive vice-president, Mr. McRee as secretary and treasurer and Mr. Lewis as assistant secretary and treasurer.

The following comprise the board: Messrs. McCourt, Fry, and Walters, Mrs. Walters, Mrs. Fry and Frank J. Glankler.

It was pointed out that reorganization of the firm puts it under the direction of the second generation of the Fischer-Fry family and ends the trusteeship under which it has operated since the death of the late William W. Fischer on November 2, 1942.

The company was founded by Mr. Fischer on "a shoestring" in 1906, with his brother-in-law and sister, Mr. and Mrs. W. N. Fry Sr., as associates. All stock in the firm and its subsidiary firms is owned by W. N. Fry Jr. and his sister, Mrs. W. S. Walters.

Goethals, Smull, Allen, Conley Win New Posts at Riverside

Recent appointments announced by the officials of the Riverside Cement Company, Los Angeles, Calif., include the following:

Albert A. Goethals, vice-president and treasurer; Lester C. Smull, vice-president and works manager; John C. Allen, vice-president in charge of sales; and Lawrence L. Conley, sales manager.

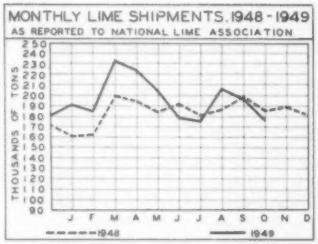
Mr. Goethals became associated with Riverside in 1913 as a stenographer in the accounting department. He served for 18 months in the United States Navy during World War I, after which he returned to Riverside as an accountant. In March, 1922, he became chief clerk at the mill office, and in 1926 he was transferred to the main office in Los Angeles as auditor. This position he held until October, 1940, when he was elected vice-president and comptroller. In December, 1948, he was elected to the board of directors and a year later he was named to his present office.

Mr. Smull entered the employ of Riverside in 1922 as a clerk. Four years later he became chief clerk at the Crestmore plant, and in 1930 he was transferred to the sales department. In 1943 he was made assistant to the general manager, and in April of 1947 he became assistant to the president. Mr. Smull was promoted to works manager in September, 1948, a post he held until his recent election as vice-president and works manager.

Mr. Allen's association with Riverside dates back to 1921, when he was employed as a salesman. Five years later he was made assistant sales manager, and in 1936 he was promoted to sales manager. He held this position until his recent election as vice-president in charge of sales.

Mr. Conley joined the firm in 1927 as a salesman. He became assistant sales manager in 1948, and last December sales manager. Prior to his association with Riverside Mr. Conley was employed with the Atlas Portland Cement Company (now the Universal Atlas Cement Company) in Chicago.

• Munson and Nelson are producing gravel for county and township roads near Cannon Falls, Minn., with this new Pioneer 345 portable duplex plant. The plant has a 1024 jaw crusher, 2416 roll crusher, 3- by 8-ft. 2½-deck screen and 3-axle chassis, with twelve 9.00 x 20 pneumatic tires. A Lima shovel loads material into a hopper with a mechanical feeder on a two-wheel truck, and a swivel drive feeder conveyor delivers material to the plant. Pioneer Engineering Works, Inc., Minneapolis 13, Minn., designed and built the plant, which was sold by the William Ziegler Company, Minneapolis, Minn.



According to data collected by the National Lime Association, 50 companies in October, 1949, shipped 176,158 tons of lime (97,830 quicklime; 78,328 hydrate). Reporting companies represent 59.5 percent of the association members' total capacity of record. Based on Pit and Quarry's estimate for the remainder of the industry, the total shipments for the month by all plants were approximately 326,000 tons. Shipments by uses and grades for October, 1949, were:

	Quicklime (tons)	Hydrate (tons)
Agricultural	4,471	9,092
Building	16,916	42,352
Chemical	76,443	26,884
Total	97,830	78,328

Johns-Manville to Produce Improved Long-Fiber "Wool"

By means of a new manufacturing process, the Johns-Manville Corporation will soon be producing an improved type of long-fiber rock wool, according to an announcement released by the firm.

The new method, initiated at the company's Watsonville, Calif., plant, will be utilized at all American and Canadian Johns-Manville plants as soon as equipment has been converted for the use of the process. The long-fibered material is said to possess unusual resiliency, which facilitates handling and decreases shipping costs.

Gold Mines' "Waste" Pays Off In California Gravel Operation

The Marshall and Miles Gravel Company operation on the Bear River north of Colfax, Calif., is working river-bed gravel which is composed chiefly of tailings from hydraulic mines formerly worked farther upstream for gold. Long regarded as "waste" and as a nuisance, states *Mineral Information Service*, the gravel probably yields a greater profit per cubic yard than was realized by the gold miners who first worked it.

A dragline recovers the gravel, and all sizes of gravel and crushed rock are produced for concrete work, principally for the state highway nearby, where extensive improvements are being made.

Spokane Portland Cement To Install Electrical Precipitator at Irvin

Contracts have been signed by the Spokane Portland Cement Company with Western Precipitation Corporation for the early installation in its Irvin, Wash., plant of a new Cottrell precipitator to recover stack dust.

The Cottrell unit, of the latest pocket-electrode design developed exclusively by Western Precipitation engineers, consists of three sections having a total capacity of about 100,000 c.f.m. It is so designed that additional sections may be added in the future to handle any

• Walter L. Penick, Western Precipitation Corp. representative, and Walter B. Neill (seated), Spokane Portland Cement Company's president, who is about to sign up for the new Cottrell precipitator.

plant expansion, and there will be provision allowing its use for recovery of other dust in the plant if desired.

Primary purpose of the new units, however, will be to handle the discharge gases from the two existing kilns at the plant, one a conventional dry-process unit, the other a Lepol kiln. The Cottrell precipitator will clean up the gas after it passes a series of mechanical collectors, and the company has been guaranteed an overall recovery of 99.4 percent of the total dust present. Temperature of the gases runs between 500 and 550 deg.F.

The precipitator installation follows a $200,000 improvement program undertaken in 1949 involving principally the installation of new finish-grinding mills. (See PIT AND QUARRY, September, 1949, p. 97.)

United Engineering & Foundry Acquires Stedman Facilities

It has been announced that the 115-year-old Stedman Foundry & Machine Works, Aurora, Ind., was recently sold to the United Engineering and Foundry Company, Pittsburgh, Pa., involving a transaction of $1,000,000.

A. E. Schneider, formerly vice-president in charge of sales for Stedman, was appointed vice-president and general manager under the new regime. Mr. Schneider announced that the firm name would be retained and stated that it is the intention of the new owners to continue operations at Aurora. An expansion program will begin promptly, with increased machine shop production and personnel.

Mr. Schneider has been associated with the company for more than 20 years. Previously, he was with the Williams Patent Crusher and Pulverizer Company, St. Louis, Mo.

The Stedman Foundry & Machine Works is made up of two divisions—the foundry, specializing in controlled specification cast irons, furnishing castings to the principle machine tool builders and machinery manufacturers in Cincinnati and surrounding territory, and the machinery division, which specializes in crushing, grinding, pulverizing, mixing and screening machinery.

The United Engineering and Foundry Company was organized in 1901 and is a $20,000,000 corporation doing a $50,000,000 business annually. It has plants at Pittsburgh, New Castle and Vandergriff, Pa., and Akron, Canton and Youngstown, O., and is part owner of the Davy & United Engineering Co., with headquarters in Sheffield, England, and plants at Middleborough, England, and Glasgow, Scotland.

In Harden County, Ill., the Golconda Mining Company, a newly formed concern, is producing fluorspar from a 6-ft. vein at the old Baker mine, which it recently purchased.

Eastern Aggregates Corp. Opens Trenton Office with F. W. Schmidt in Charge

Eastern Aggregates Corporation has announced the opening of offices at 28 W. State Street, Trenton, N. J. The corporation will provide a specialized service to aggregates producers, contractors and others interested in the construction of presently contemplated large projects in this area.

F. W. Schmidt, president of Eastern Aggregates, was for many years vice-president in charge of operations of the North Jersey Quarry Company, Morristown, N. J. Since 1944 he has served as chairman of its board of directors. In order better to serve the new Eastern Aggregates project, Mr. Schmidt has terminated his connections as an officer and director of the North Jersey Quarry Company.

The Homestead, Hot Springs, Va., will be the place and May 11 to 13 the dates chosen by the National Lime Association for its annual spring convention, according to *Limeographs*, news bulletin of the organization.

The Agricultural Limestone Institute, 1415 Elliot Place, N.W., Washington 7, D.C., has released a new promotional folder entitled *Limestone, Organic Matter, and Nitrogen.*

Missouri Limestone Producers Convene at Jefferson City, Mo.

Conducting its third annual association meeting, the Missouri Limestone Producers Association convened at Jefferson City, Mo., on December 9 and 10. The meeting was highlighted by papers presented by the Hon. George C. Christopher, U. S. congressman, 6th Missouri District, Dr. W. A. Albrecht, chairman, Department of Soils, University of Missouri, and James Meredith, legal secretary for Governor Forrest Smith. Mr. Meredith substituted for Governor Smith, who was confined to his home due to illness.

Two new members were elected to the board of directors: Tom Clark, Clark and Runquist, Savannah, and Ben P. Donnell, Valley Dolomite Corporation, St. Louis. The third board member, C. E. Thomas, Deitz Hill Development Company, Kansas City, will continue in office. Arthur Alvis of Butler and Ray Howerton of Ashley retired after almost three years of service.

Association officers for 1950 are the following: J. J. Griesemer, Billings, president; Merl Hamill, Canton, vice-president; W. T. Clark, Savannah, secretary-treasurer; Paul N. Doll, Jefferson City, manager; and Messrs. Hendren and Andrae, both of Jefferson City, counsel.

In his talk on the values of agricultural limestone and other soil nutrients, Senator Christopher stated his belief that the federal farm program was a necessity to modern farming. He predicted that the federal government will sponsor farm programs, in one form or another, for years to come.

Dr. Albrecht appealed to limestone producers to take increased initiative in developing know how with respect to soil nutrients. He expressed the opinion that government subsidies had "put the limestone business on its feet" several years ago, and that another major step in the industry was the advent of adequate spreading service. He added that the next responsibility which must be accepted by producers is the over-all problem of making all soil nutrients, including trace minerals, available to farmers.

Speaking briefly on *The Governor's Rural Road Program*, Mr. Meredith stated that the use of crushed rock for road building purposes would be trebled if that program were put into effect. Mr. Meredith stated that although there is little doubt in the executive office regarding its passage, producers should support the program, not only for their own interests but for the good of the state as a whole.

More Than 1700 Persons Attend 31st A.E.D. Meeting

• 1950 A.E.D. officers—Front row: F. G. Knight, executive secretary, Chicago; C. F. Halladay, president, Sioux Falls, S. D.; R. L. Arnold, executive vice-president, Salt Lake City. Back row: R. J. Fyfe, C.A.E.D. president, Regina, Sask., Canada; H. J. Hush, vice-president, New York; E. J. Crosby, treasurer, South Boston, Mass.; and J. A. Benson vice-president, Houston, Texas.

Prospects and problems confronting the construction equipment industry in the months ahead were top discussion topics as a record-breaking attendance of 1700 distributor and manufacturer members met in Chicago's Stevens Hotel on January 15-19 for the 31st annual meeting of Associated Equipment Distributors.

A feeling of moderate optimism over the outlook for 1950 seemed to prevail throughout the convention period, although the pressing need for increased emphasis on all phases of management, sales and service was stressed continually at the business sessions and panels which featured the four-day program.

C. F. Halladay of Halladay Dettman Company, Sioux Falls, S. D., was elected international president by active distributor members in attendance, to succeed W. W. Bucher of R. E. Brooks Company, New York.

Other 1950 officers elected to lead the association during the coming year were R. L. Arnold, Arnold Machinery Company, Salt Lake City, executive vice-president; H. J. Hush, Griffin Equipment Corporation, New York, vice-president; J. A. Benson, Benson Tractor Company, Houston, Tex., vice-president; R. J. Fyfe, R. J. Fyfe Equipment Company, Regina, Sask., Canada, vice-president; and E. J. Crosby, Hedge & Mattheis, South Boston, Mass., treasurer.

The convention program was opened on Monday, January 16, with a warm welcome from retiring president W. W. Bucher. Referring to the report of the Hoover Commission and to the hundreds of hidden taxes which add to the cost of nearly every commodity, he urged distributors to analyze their business operations carefully in an effort to eliminate the "leaks" and hidden costs which increase the cost of doing business.

A six-man distributor panel moderated by W. A. Danner of Parker-Danner Company, Hyde Park, Mass., then took the floor to discuss *Today's Problems and Tomorrow's Profits.*

Harry E. Shaw of Service Supply Company, Philadelphia, led off with a review of important developments affecting the equipment rental picture. He cautioned distributors to determine their objectives in entering into the rental field, and to pattern their organization accordingly. A discussion of rental purchases, led by A. H. Jensen of Boehck Equipment Company, Milwaukee, brought out many of the fundamental problems and considerations underlying this type of agreement.

The final participant on the morning panel was C. M. Weinberg of Brown-Bevis Equipment Company, Los Angeles, whose observations on present-day financing, credit and collection problems brought out the increasing importance of these subjects to all members.

Following the noon luncheon the panel resumed with P. A. Dufford of Intermountain Equipment Company, Boise, Idaho, outlining the factors governing a distributor's inventory policy. The problem of maintaining adequate turnover while meeting the needs of the equipment user was described as the key factor.

C. F. Halladay, 1950 president-elect of A.E.D.

The present-day trade-in situation and the 1950 outlook in this regard was discussed by T. M. Sheehan of Empire Equipment Company, Sioux Falls, S. D., who called attention to the importance of establishing adequate yard-sticks for measuring the true value of trade-ins. Discussion also centered about the matter of compensating salesmen who take part in trade-in transaction, and how the risk may be shared under today's market conditions.

Finally J. T. Hatten of Star Machinery Company, Seattle, delivered one of the outstanding talks of the panel and summarized the major questions that must be solved by distributors in any approach to the matter of effective sales training.

Tuesday, January 17, was entirely devoid of scheduled business sessions in order to facilitate individual contacts between distributor and manufacturer members, as was the afternoon of Wednesday, January 18.

Wednesday morning's program opened with the election of 1950 officers. The assembly adopted a resolution urging support of the Taft-Hartley law through widespread dissemination of factual information on this subject by members favoring the act, and further stating that "it is our considered opinion that the election of senators and representatives unfavorable toward the Taft-Hartley law will be detrimental to our national economy."

The following speakers appeared on the Wednesday program: Frank G. Knight, A.E.D. executive secretary; Walter L. Couse, president-elect of Associated General Contractors, of Walter L. Couse & Co., Detroit; Clarence Y. Palitz, president of Credit-America Corporation, New York; and Thomas S. Holden, president of F. W. Dodge Corporation, New York.

The official business portion of the 1950 convention program was concluded on Thursday morning, January 19, with an outstanding open forum panel, composed of six leading distributors and six leading manufacturers of construction equipment. Sponsored by the association's manufacturer members, this session was devoted to informal discussion of more than a score of key problems affecting *Development and Retention of Markets for Construction Equipment.*

Fred Salditt of Harnischfeger Corp., Milwaukee, served as chairman of this meeting, while Harold W. Richardson, editor of *Construction Methods and Equipment,* acted as moderator.

Manufacturer participants were as follows: J. E. Carroll, American Hoist & Derrick Co., St. Paul, Minn.; M. B. Garber, The Thew Shovel Co., Lorain, O.; W. B. Greene, Barber-Greene Company, Aurora, Ill.; Kenneth Lindsay, Iowa Manufacturing Co., Cedar Rapids, Ia.; Harold Reishus, International Harvester

(*Continued on page* 53)

• Gustafson & Reynolds, Sioux Falls, S. D., use a setup consisting of the following equipment at their operation near Sturgis, S. D.: a Diamond No. 65 portable crushing plant, powered by a "Caterpillar" D13000 engine, and a "Caterpillar" diesel No. 12 motor grader, here seen stockpiling gravel.

Magnet Cove Barium Company Sold to Dresser Industries

The Magnet Cove Barium Corporation of Houston, Tex., was recently sold to Dresser Industries, Inc., of Cleveland, O., for approximately $2,800,000 cash, plus 17,515 shares of Dresser common stock.

Magnet Cove produces mineral and chemical compounds for the preparation of "drilling mud." It operates a barite mine at Magnet Cove, Ark., and a plant at Malvern, Ark. About 30 percent of the oil industry's "mud" needs is supplied by Magnet Cove.

Striking Potash Workers Return to Jobs at Carlsbad

Work stoppages at three Carlsbad potash companies ended on January 16, when 300 men returned to their jobs.

At a hearing of National Labor Relations Board contentions concerning the strike in Albuquerque, representatives of the NLRB, the companies, and the union involved had consented to a temporary injunction enjoining strikers from blockading mine entrances.

Picketing mine workers of three concerns producing 85 percent of the country's domestic potash supply were affected by the order—the International Minerals and Chemical Corporation, the Potash Company of America, and the United States Potash Company.

The 58-day strike officially ended when the men re-entered the mines.

Witt Announces Patenting Of Clinker-Making Device

J. C. Witt, consulting engineer, announces that he has patented the "Counter-Cyclone Clinkerer", a clinker-producing unit which is said to have some advantages over the rotary kilns. Clinker passing A.S.T.M. specifications has been made in a pilot plant in 20 to 30 seconds.

Experiments have been carried on for several years, beginning in the laboratory and continuing through three progressively larger pilot plants.

Support the Red Cross— A Service That Helps All

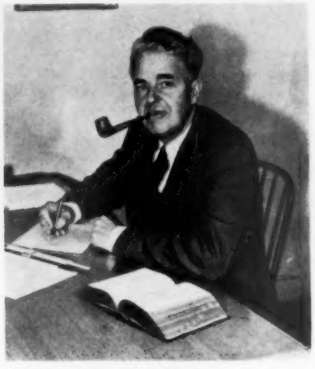
Every March the American Red Cross goes to the people of this country for support of its program. This program entails responsibilities decreed by federal statute, responsibilities of national and international scope that continue both in war and peace.

The response of Americans, not only at fund raising time but throughout the year, to every part of the Red Cross program—blood, safety, service to veterans and the armed forces and their families, nursing, disaster, international activities, and other services—is never failing.

We of PIT AND QUARRY believe in the many-sided program of the American Red Cross and wish to go on record as giving our whole-hearted support to its work. Help a cause that exists to help you.

Gibbs Leaves York-Shipley To Resume Private Practice As Consulting Engineer

Ralph E. Gibbs, York, Pa., recently has returned to his practice as a consulting chemical engineer specializing in rotary kiln operations. Since 1945 he has been engaged as research director for York-Shipley, Inc., besides devoting considerable time to writing articles for



Ralph E. Gibbs

technical and semi-technical publications.

Prior to 1945 Mr. Gibbs, in the capacity of a consultant, worked on many lime and CO_2 recovery projects throughout the country. During this time he worked closely with the late W. R. Cliffe, noted expert in the lime field.

From 1923 to 1942 Mr. Gibbs held positions as chief chemist for the York Corporation (then the York Manufacturing Company and the York Ice Machinery Corporation), and technical director of kiln operations in the field of lime and refractory dolomite manufacture. In this work, he made extensive studies on the scientific operation of rotary kilns and developed several new principles of thermodynamics as applied to calcination.

New Hoist Speeds Output At New Mexico Potash Mine

Special push-button drive and control equipment, developed by engineers of the General Electric Company has enabled a new mine hoist at Carlsbad, N. M., to raise and dump eight tons of potash ore per minute automatically from 1150 feet below ground.

Installed at the Potash Company of America mines, the new hoist will speed production of potash for fertilizer which is essential in maintaining a high level of food production.

Driven by two 500-hp. G-E motors, the hoist sends one 8-ton ore bucket down the 1150-ft. vertical shaft to be filled by a gravity chute, while a second is ascending. As the 8-ton load starts up, the empty bucket descends.

Although full hoisting speed is 1500 f.p.m., the G-E control system automatically decelerates the hoist as the buckets approach either end of the lift to prevent overspeeding and overtraveling.

From the State Capitals

LOUISIANA — Louisiana's road building and maintenance program for 1950 will cost nearly $49,000,000, an increase of $10,000,000 over 1949.

New construction is budgeted at $30,296,000 for the year, including rights of way, while regular maintenance on the state's 15,000-mile road system will cost $12,242,000. Administrative and engineering costs will total $3,300,000, and the state will spend $1,086,000 in aid to parishes for their road systems. Other estimates include $1,000,000 for equipment, $727,000 for retirement and compensation insurance, and $271,000 for statutory charges.

Revenue available for road building during 1950 totals about $100,000,000, including $32,000,000 in unexpended balances, $32,000,000 in federal funds, $14,000,000 from the bond redemption fund set aside from gasoline taxes, $12,000,000 in gasoline taxes and automobile licenses, and $7,000,000 in restricted funds.

NORTH CAROLINA — Expanded highway construction in North Carolina during 1950 was promised by Gov. W. Kerr Scott. "I am asking the State Highway Commission to finish 10 miles of paved road and 30 miles of stabilized road on the secondary system each working day of 1950," he declared. "This is far more than the highway commission has ever attempted before, but we are now agreed to build roads a great deal faster and a great deal better—and we can attain this goal if nobody drags his feet."

IDAHO—An Idaho highway improvement program costing $150,000,000 during the next 12 years, accompanied by increased fees against passenger and commercial vehicles and reorganization of highway administration, is proposed in a report which will be submitted to a special highway study committee.

MASSACHUSETTS—Authorization of another $100,000,000 state bond issue for further highway construction equitably distributed throughout the state was advocated by Gov. Paul A. Dever in his message to the 1950 Massachusetts legislature.

A highway bond issue of similar amount was approved in Massachusetts last year.

Opposition was expressed by the governor to any new or increased state taxes.

NEW JERSEY—New Jersey's State Turnpike Authority, which plans to construct a 118-mile cross-state toll superhighway, announced that it has obtained funds for temporary financing through sale of $2,000,000 of 3¼ percent 10-year bonds.

Paul L. Troast, chairman of the authority, said the bonds would provide sufficient funds to carry on until after Feb. 1, when it is expected that the overall plan for the sale of construction revenue bonds in the amount of $220,000,000 will have been completed.

RHODE ISLAND—Creation of a commission to study financial and other problems relating to the proposed launching of a broad highway modernization program, including a $75,000,000 north-south freeway through Providence, was recommended by Gov. John O. Pastore.

CITY TOLL—That the toll road financing trend may spread to major cities as well as states was indicated when construction of an elevated cross-town toll highway in Manhattan was proposed by Robert Moses, chairman of the Triborough Bridge and Tunnel Authority.

Moses estimated the cost of building such a highway at $26,000,000, with the cost of the land needed for the project listed on the tax rolls as having an accessible value of more than $23,000,000.

COLORADO—Colorado's Supreme Court heard final oral arguments on the question of whether a $5,000,000 toll road between Denver and Boulder can legally be constructed.

The proposed toll highway project has been delayed for nearly a year by the questioned constitutionality of toll road legislation enacted by the 1949 Colorado legislature.

How the high state court decides the case will determine whether the project can be launched in the spring, as planned by the State Highway Department.

James M. Rice Joins Staff Of N.C.S.A. Engineering Dept.

A recent newcomer to the engineering staff of the National Crushed Stone Association is James M. Rice, who has accepted the post of testing and research engineer. Mr. Rice has assumed the duties formerly performed by J. E. Gray and more recently by Phillip C. Clarke.

James M. Rice

Soon after Mr. Rice's graduation from Purdue University in 1940 he began a four-year term of service in the United States Army Signal Corps. He resumed his studies after his return to civilian life and became research assistant on the Joint Highway Research Project under Professor Kenneth B. Woods at Purdue.

Mr. Rice has also served with Walter K. Flood Testing Laboratories in Chicago and with K. E. McConnaughay in Lafayette, Ind. He is a member of the U. S. Corps of Engineers Reserves, a junior member of The American Society of Civil Engineers, an associate member of the Highway Research Board, and a registered professional engineer.

A.E.D. Meeting

(*From page* 51)

Co., Melrose Park, Ill.; and L. G. Schraub, Union Wire Rope Corp., Kansas City, Mo.

The following distributor members took part in the panel discussion: R. L. Arnold, Arnold Machinery Co., Salt Lake City; J. A. Benson, Benson Tractor Co., Houston, Tex.; M. L. Gibson, Gibson-Stewart Co., Cleveland, O.; M. J. Lyons, Lyons Machinery Co., Little Rock, Ark.; and S. J. Oechsle, Metalweld, Inc., Philadelphia.

A wide variety of subjects relating to service, finance, advertising and promotion, training and education, production, inventories, general trade practice and the general market situation received the attention of this panel.

Among the entertainment highlights which featured the four-day program were the 31st annual birthday party, in honor of the outgoing president, W. W. Bucher, and an Early Birds' Breakfast on the opening day, also given in his honor by distributor members from his region (New York and New Jersey). Luncheons on Monday, January 16, and Thursday, January 19, were addressed by top-ranking speakers, while the installation luncheon on January 18 saw 1950 officers and directors, headed by C. F. Halladay of Sioux Falls, take office for the coming year.

A special program was also arranged during the convention for the nearly 300 ladies in attendance during the week.

Dimension stone (excluding slate) sold or used by producers in the United States in 1948, as reported by producers to the U. S. Bureau of Mines, totaled 1,671,610 short tons, valued at $48,024,119, an increase of 18 percent in quantity and 17 percent in value as compared with 1947 figures. This total includes all dimension stone—blocks or slabs of cut or shaped stone—sold or used for rough construction, cut stone, slabs, mill blocks, rubble, monumental stone, paving blocks, curbing, and flagging.

30 years ago in Pit and Quarry

By WALTER E. TRAUFFER

THAT PIT AND QUARRY has always done everything possible to cooperate with the various trade associations in the nonmetallic minerals industries in advancing the interests of these industries is evident at a glance in any issue, current or 30 years ago. This was especially true of the February, 1920, issue in which the affairs of these associations predominated.

On the first editorial page appeared the accompanying cartoon, which forcefully illustrates the results which can be obtained by cooperative effort in an industry. An old nut cracker cannot help but wonder if the cooperative effort in this case was not just a little too strong as there was probably very little of the kernel of this nut left in an edible condition. In the same issue an editorial urged serious consideration by state associations of the advantages of joining the national association in their industry. Further in this vein considerable space was given to the annual convention of the Indiana Sand and Gravel Producers Assn. at Indianapolis, Ind., January 6 and 7, where the most important action taken was the decision to join the national association as a body.

Another cooperative move was the merger of the Illinois and the Chicago sand and gravel associations, with offices in Chicago. The new group had 41 members, including all the producers in the Chicago district except one. Comment was also made editorially on the "Wisconsin Idea" as one to be emulated. In that state a "mineral aggregate" association represented the interests of producers of all aggregates, not just one.

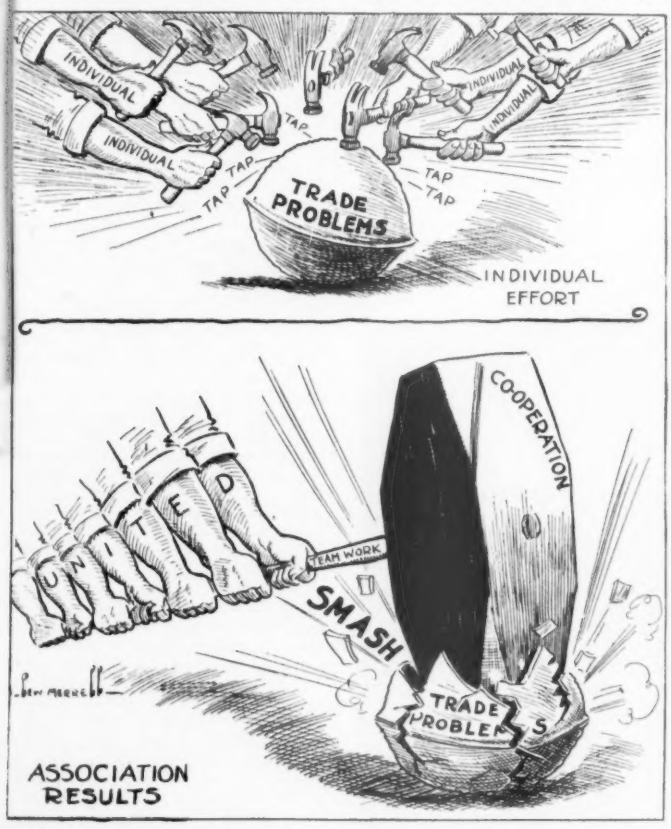
In an advance statement regarding the coming National Crushed Stone Association convention in Louisville, Secretary A. P. Sandles said that the year of 1920 would be the best ever experienced by the crushed stone industry and that the coming convention would reflect this condition in the size and spirit of its attendance. Another announcement said that the Kentucky Crushed Stone Association would meet simultaneously.

Other conventions reported in this issue were those of The Ohio Sand & Gravel Producers' Association, held January 20 and 21 at Columbus, O.; the National Slag Association, January 16 at Cleveland, O.; the Ohio Macadam Association, January 13 at Columbus; the 13th District Association of Mineral Aggregate Producers, including the sand, gravel and crushed stone producers of Nebraska, Kansas, Missouri and Oklahoma, held January 19 and 20 in Kansas City, Mo.

There was also a report on the visit to this country of three representatives of the Dutch Lime Manufacturers' Association, here to study all phases of the production and use of lime. Their tour of inspection was made with the cooperation of the National Lime Association.

Safety was not neglected in this issue. Reproduced in full was a paper entitled *Platforms and Walkways, Stairs, Ladders and Floors in Cement Mills* by E. R. Abbott of the Canada Cement Company, which was presented at the recent Eighth Annual Safety Congress.

Other important features of this notable issue were two original articles by Associate Editor D. J. Hauer, one on *How to Explore a Gravel Pit* and the other on *Methods of Loading Quarry Cars. How to Increase Boiler Room Efficiency* was described in detail by D. S. Jacobus, advisory engineer of the Babcock & Wilcox Co.



● "There's one effective way to crack the nut!" reads the caption of this cartoon in the February, 1920, issue of Pit and Quarry.

Ohio Turnpike Commission Planning 234-Mile Highway

James W. Shocknessy, a Columbus attorney, was chosen as chairman of the Ohio Turnpike Commission at its organization meeting on September 8. The 1949 Ohio legislature created the new five-member commission to build toll highways in the state. Enactment of the legislation was sought to permit the issuance of bonds to build toll highway facilities, estimated to cost $200,000,000, which would run approximately 234 miles, from about Petersburg (8 miles south of Youngstown) across Ohio, just south of Cleveland and Toledo. The proposed superhighway would connect with the Pennsylvania Turnpike when the latter is extended to the Ohio line.

O. L. Teagarden, Oak Harbor banker, was named vice-chairman of the commission, and the State Highway Director T. J. Kauer was elected secretary-treasurer. Other commission members are J. Gordon McKay of Cleveland and Murray Seasongood, Cincinnati attorney.

The commission decided to set up temporary offices in the quarters of the state Highway Department. Mr. Shocknessy and Mr. Kauer were named a committee to draft rules and regulations for the commission's operations.

Excellent Program and Attendance Mark Fifth Annual N.A.L.A. Convention

another ON THE SPOT report

THE Fifth Annual Convention of the National Agricultural Limestone Association, held January 18 and 19, 1950, at the Statler Hotel, Washington, D. C., was probably the best yet held by that

By WALTER E. TRAUFFER

young and vigorous group. The attendance was excellent, the program was varied and interesting, and the prospects for the coming year are good. The location provided unexcelled facilities for the entertainment of the ladies present, and they were taken on several tours. It is estimated that 248 persons were registered for this meeting. The only bad break was that the banquet was held on the same night as that of a war veterans' organization, and this held down the number of congressmen in attendance. Even so about 23 representatives and several senators were present.

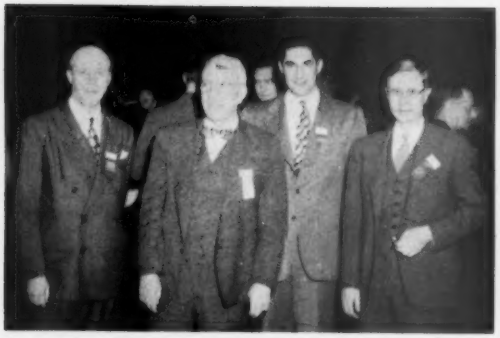
Officers' Reports Herbert C. Gray, retiring president and Robert M. Koch, energetic executive secretary of the N.A.L.A., in brief reports summarized the work the association has done in the past year and some of the problems which face the industry. Producers were cautioned not to feel too smug about the fact that the funds for the current year were raised to $285,000,000. Constant effort is necessary to insure that this figure will not be reduced in the following year, while actually a $500,000,000 appropriation can be justified. Mr. Koch also discussed the efforts of this and other nonmetallic minerals industries to obtain percentage depletion and said that efforts will be increased in this direction. The output of the industry, said Mr. Koch, probably reached a total of about 25,000,000 tons in 1949, as compared with the 23,000,000-ton volume in 1948. There is, he said, great need for selling farmers on reliming their farms, as many of them seem to feel that one application should last a long time. He also mentioned possible changes which might develop in the method of selling agstone to farmers.

• Newly-elected N.A.L.A. officers: Robert M. Koch, Washington, D.C., executive secretary; Vincent Shea, Allied Minerals, Inc., West Chelmsford, Mass., president; B. T. Scharbach, Sand & Stone, Inc., Essexville, Mich., vice-president; and N. G. Farber, Farber White Limestone Co., Franklin, N. J., treasurer.

Harry E. Battin, treasurer (Callanan Road Improvement Company), gave a brief report on the financial condition of the association, which is now definitely in the black.

Committee Reports Nicholas G. Farber (Farber White Limestone Company), presented the report of the finance committee, of which he is chairman. A new dues structure was discussed. The report of the membership committee was presented by Chairman Barney T. Scharbach (Sand & Stone, Inc.), who said that the total membership is now over 250. This is

• Scene at the banquet held during the fifth convention of the N.A.L.A. at the Statler Hotel in Washington, D.C.



• Director T. C. Pollock, Vermont Associated Lime Industries, Burlington, Vt.; Senator George Aitken of Vermont; Director T. B. Stafford, Vermarco Lime Co., Proctor, Vt.; and Director Charles Rich, Swanton Lime Works, Inc., Swanton, Vt.

• Right: Director W. J. Clark, Munnsville Limestone Corp., Munnsville, N. Y., introducing Sen. E. J. Thye of Minnesota to Mrs. H. C. Gray of Tulsa, Okla. In the background are President-elect Vincent Shea and H. C. Gray, Standard Paving Co., Tulsa, Okla., retiring president.

less than the previous year's total but, he pointed out, most of those who have dropped out were associate members. John M. Deely (Lee Lime Corporation) chairman of the legislative committee, told of the appearance of this committee before a congressional committee which later recommended an increase in the conservation appropriation. Efforts will continue to get the figure back to $300,000,000. Agronomists, said Mr. Deely, estimate that this program actually needs $1,000,000,000 annually. The chairman of the committee on percentage depletion, Cale Haun, was not present, so the report was presented by Earl A. Heckathorn (Stuntz-Yeoman Company). He stated that the agstone industry has twice come close to getting percentage depletion and that the last effort came closest. Efforts will be continued. A report was also given on the promotional activities of the association by Robert J. Pleasant (Anchor Stone & Materials Company). A good start was made in the past year, but efforts will be considerably increased in 1950.

New Officers and Directors The new officers elected at this convention were as follows: president, Vincent Shea (Allied Minerals, Inc.); vice-president, Barney T. Scharbach; treasurer, N. G. Farber. Robert M. Koch was re-elected secretary.

New 3-year directors are the following: Harry E. Battin (Callanan Road Improvement Co.), William L. Bryan (Bryan Construction Co.), William E. Burall (Farmers Cooperative Association), Charles W. Duff (Avon Bend Lime Marl), J. W. Etchison (Etchison Stone Co.), Nicholas G. Farber, (Farber White Limestone Co.), Leonard S. Fry (Fry Coal & Stone Co.), Herschell W. Lamb (Grove City Limestone Co.), Richart W. Lutz (The Lutz Co.), J. B. Mount (Maymead Lime Co.), Mrs. S. D. Pace (Monroe-Cumberland Construction Co.), Robert M. Patton (Plum Run Stone Division, N. Y. Coal Sales Co.), Perry Pederson (Pederson Bros.), Edwin M. Prettyman (Annville Stone Co.), Knott C. Rankin (Rockland-Rockport Lime Co.), Fred E. Roberts (Evans-Roberts, Inc.), Barney T. Scharbach (Sand & Stone, Inc.), Donald U. Smith (D. U. Smith & Bro.), Lynn Stewart (Columbus, Ind.), and Paul Thesen (Black White Lime Co.).

New 1-year directors are M. M. Green (Green's Lime & Rock Quarry), Tom Stafford (Vermarco Lime Co.), and John Wagner (Meadowview Lime Co.).

The new 2-year director is F. E. Wholaver (Whiterock Quarries, Inc.). These men, with those already in office, form a board of 58 members.

The executive committee consists of the following: Arthur Alvis (Butler, Mo.), Alvin R. Armbrust (Fayette Limestone Co.), Harry E. Battin, W. Ray Clark (Everett & Clark), John M. Deely, Leonard S. Fry, Herbert C. Gray (Standard Paving Co.), Earl A. Heckathorn, J. B. Mount, Clarence A. Munz (Eastern Rock Products, Inc.), Robert J. Pleasant, Charles Rich (Swanton Lime Works, Inc.), R. M. Seifried (National Lime & Stone Co.), and B. F. Taylor (Cowan Stone Co.).

Operating Session The panel discussion of operational matters on Wednesday afternoon met with warm response, which should insure its becoming a permanent feature of these meetings. The six panel members included five representatives of manufacturers making different types of machinery used in this field. The following members participated: F. O. Reedy, vice-president, Kennedy-Van Saun Mfg. & Engineering Corp.; William F. Doyle, president, Sturtevant Mill Co.; D. O. Kennedy, assistant chief, Safety Branch, U. S. Bureau of Mines; C. H. Rosselot, Even Spread Spreader Co.; T. H. White, Universal Engineering Corp. Arthur Alvis presided and turned in an excellent performance, having both the necessary bounce and the knowledge of the industry to keep the discussion going.

Each panel member first made a short statement to identify his status as an expert and, in the case of the machinery men, to identify his types of equipment. Mr Reedy, in opening, said that the producers are very important in the development of new machinery; that, in fact, a large proportion of new developments emanated from them. He then mentioned the problem faced by the producer who must make a 98-100 percent through 20-mesh product but does not want much more than 40 percent through 100 mesh. He also said that limestones with low silica and high lime content can usually be reduced most economically with a hammermill but that other types such as the Kennedy-Van Saun air-swept tube mill are best for the more abrasive materials and for high finenesses.

Mr. Doyle pointed out the varied problems involved in making equipment which can process the many types of stone in this industry to the widely varying specifications. He also told of the growing demand for agstone processing equipment in foreign countries and stated that most of them want a fine product, as fine as 97 percent through 100 mesh. The pelletizing of fertilizers, he said,

is growing more popular. This method combines all ingredients in each pellet and these leach away gradually.

Mr. Kennedy praised the industry and the affiliated crushed stone industry for their excellent safety records but urged even greater effort. Most of the accidents in this industry, he said, are of a relatively simple type which are difficult to prevent.

Mr. Rosselot briefly reviewed his history. As an agstone producer he felt many years ago the need for a suitable spreader in his business, so he developed one for his own use and later put it on the market. The earlier ones were made for dry agstone only but one is now made with a 4-speed drive so that it can be used equally well for agstone, lime, phosphate or superphosphate.

Mr. White described a new Universal portable plant which is a complete, compact crushing and screening operation on one chassis. He also described a new screen which uses rubber balls in a tray under the bottom deck to keep it from blinding.

Mr. Doyle, in answer to a question, said that when material is ground finer than 40 mesh, sizing is best done by air classification except in the case of wet material. Air separators, he said, are being used by producers of stone sand for dam construction, a problem similar to that of the agstone industry. Norbert Neuheisel (Neuheisel Lime Works, Inc) said that the highway departments of four counties in Wisconsin are producing agstone, selling it and spreading it for farmers at a price so low commercial producers cannot compete. They also pay only one dollar license fee for each truck. He said that this practice threatens to increase in that state. The ensuing discussion seemed to prove that this is not now being done in any other state, the nearest being a few cooperatives which date back to when there was very little commercial production.

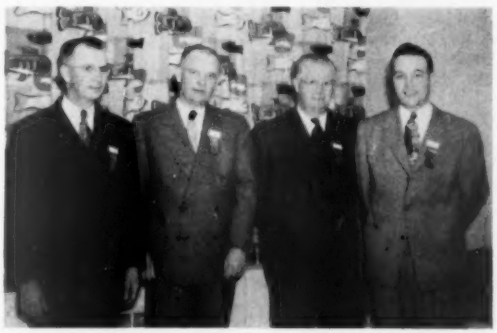
Blast damage complaints, said one producer, can be largely eliminated by letting explosives company experts lay out blasts and by using the delay system. Another told of having trouble keeping diesel engine air filters clean. He stated that he solved this by mounting a large filter for all the engines on top of an old windmill tower. This, he said, has repaid its cost in a few months' time.

Several present agreed that most hammermills are underpowered and that hammers as a result wear excessively due to dragging. The installation of much larger motors greatly reduced hammer wear and increased output. Another takes up the shock of steel going in the hammermill by adjusting the clutch so that it will hold for normal operation but will slip when overloaded. This practice increases clutch wear but is cheaper overall. The problem of what to do when oversize rock gets into a hammermill got several answers, the best of which was to send the shovel operator up to do the job. A few such trips soon cure him of loading oversize stone.

Selling Agstone R. M. Seifried presided over the meeting on Thursday morning. In a brief introductory address he said that his company sells little agstone either by contract or by purchase order. Most farmers buy their agstone outright and turn over their sales slips to the A.A.A.

Our Experiences in Promoting Sales of Agricultural Limestone well described the joint presentation of Leonard Fry and William C. Gerhart (Fry Coal & Stone Co., Mercersburg, Pa.). Mr. Fry said that after several years of good business ending with the record year of 1946 business slumped sharply in 1947, and it became necessary to start selling agstone. Farmers were reluctant to sign up, so it was decided to hire a man to test the soil and prove the need for agstone. This man was Mr. Gerhart, a trained agronomist. At first efforts were confined to the farms of committeemen. Then cards

• Right: The following directors posed for this shot: Perry Pederson, Pederson Bros., Harmony, Minn.; B. F. Taylor, Cowan Stone Co., Cowan, Tenn.; K. C. Rankin, Rockland-Rockport Lime Co., Rockland, Me.; and R. M. Patton, Plum Run Stone Division, New York Coal Sales Co., Columbus, O.



• Below, left: Another quartette of directors: C. A. Munz, Eastern Rock Products, Inc., Utica, N. Y.; Robert Schneckloth, Lowden Rock Products, Lowden, Ia.; D. L. McCullough, Alabama Aggregate Co., Birmingham, Ala.; and A. R. Armbrust, Fayette Limestone Co., Washington Court House, O.

• Below, right: John Wagner, Meadow View Lime Co., Meadow View, Va.; L. W. Hayes, L. W. Hayes, Inc., Kansas City, Mo.; H. E. Battin, Callanan Road Improvement Co., South Bethlehem, N. Y.; and R. C. Prall, Rush County Stone Co., Milroy, Ind. Messrs. Wagner, Hayes, and Battin are directors.

• Arthur Alvis, Butler, Mo., director; Rep. George Christopher of Missouri; Mrs. Arthur Alvis; Marvin Durst, secretary to Rep. Christopher; and Everett Felber, A.C.P. Branch, U.S. Department of Agriculture.

were sent out to a selected list of farmers, and an 85 percent return requested that their soil be tested. According to Mr. Fry it is too early to tell how this procedure will affect sales, but good results are indicated.

Mr. Gerhart then described the manner in which he goes about his work. Usually as he talks to a farmer, they walk across a field while he describes the tests and what they indicate. Most farmers have limed quite heavily for several years and think they don't need any more. According to Mr. Gerhart, he is usually able to show them positive signs in the soil, in the weeds or in the plants which provide positive proof of soil acidity. He also makes suggestions on where the lime is needed and how much, what crops should go where, etc. He makes no efforts to sell agstone on the spot, but most farmers order as he recommends after they have time to think over what he has said. Mr. Gerhart warned that most farmers can't be fooled and said that it is bad business to tell them they need agstone when they don't. He carries with him only simple, rough lime testing equipment, making the complete tests on air-dried samples in the laboratory. Only inexpensive equipment is required there.

Following Mr. Gerhart's talk many questions were asked. These brought out the fact that of all the many farms he has tested only one did not require agstone somewhere. In this area land which will grow alfalfa will also grow small grains, and efforts are made to keep the pH at about 7.0. Most of the farms require about 1½ tons of lime per acre about every third or fourth year. In order to provide steady liming and sales the company tries to sell a farmer 30 to 40 percent of his needs each year. Mr. Gerhart said that a sample must be a composite of an entire field, taking into account the contours which may indicate uneven topsoil distribution. Efforts are made to discourage farmers from taking and bringing in their own samples, which are usually inaccurate.

Mr. Gerhart said that in the advertising done they use the farmers' term of "sweetening" the soil but they also point out what the necessary elements are. He also advised the fullest cooperation with 4H Club members, who will be much better judges of lime requirements than their fathers now are. Mr. Gerhart seldom has time now to sample entire farms but picks out the most likely fields and in this way can average 4 or 5 farms daily. He estimates that the soil in his area requires 3500 lbs. of agstone to raise the pH from 5.0 to 6.0, but 2 tons is all that he ever permits to be applied to an acre at one time.

The Distinction of Limestone The meeting was next privileged to hear Paul N. Doll, manager of the Missouri Limestone Producers Assn., give his now famous presentation on *The Distinction of Limestone*. He illustrated his address with a series of cards. The first showed an agstone plant and what it does. Another was a chart of the uses of limestone and the things made from it. The most important of these, he said, is man. He said that producers should sell with the idea of correcting acidity, but that they should also point out the effect on the human body. As one card stated, "The Distinction of Limestone Lies in Its Effect on the Mind and Body of Man". Mr. Doll then traced the rise and fall of various ancient and modern empires and civilizations, pointing out that deterioration of the mind and body caused each to fall. Another card said, "Mineral Quantities Are Constant; Mineral Locations Are Not Constant; All Minerals Are on Their Way to the Bottoms of the Seas". By means of a complicated formula he showed that the Mississippi River each year discharges 68,800,000 tons of calcium carbonate equivalent into the sea. This is three times as much as we are putting into the soil. The day will come, he said, when the farmer will have to guarantee the mineral content of his products.

Mr. Doll saved for the last a semi-serious chart which proved arithmetically that the government payment on lime used is more than repaid to the government by the increased income tax from the increased income derived by the farmer from the use of the agstone. In closing, he said that there should be only one agstone association in this country through which the various state associations and all the producers can work. Only in this way, said Mr. Doll, can the industry work most effectively with the most benefit to mankind.

Under Secretary of Agriculture *Building Bigger Acres* was the subject of the address at the Thursday luncheon by Albert J. Loveland, Under Secretary of Agriculture. He pointed out that in spite of our higher standard of living we are still losing our land at a rapid rate through depletion and erosion. About 20 years ago we became aware of this, he said, and now the results of our conservation efforts are becoming impressive. Agstone has played an important part in this program. Now, in spite of our growing population, we are eating 17 percent more and better than in the 1935-39 period. We must remember, he pointed out, that food is one of the chief keys to peace; well-fed people don't look for trouble. Mr. Loveland also emphasized that there is a level below which farm prices cannot be permitted to fall for the good of us all. He does not look on our excess production as surplus. There are now about 30 million excess acres, but our growing population will need

• R. C. Anderson, secretary to Rep. Roy Woodruff; Rep. J. W. Byrnes of Wisconsin; Norbert Neuheisel, Neuheisel Lime Works, Eau Claire, Wis., director; Rep. Roy Woodruff of Michigan; B. T. Scharbach, newly-elected vice-president.

• A Missouri foursome: Arthur Alvis, director; W. R. Clark and Buford Everett, Everett & Clark, Plattsburg, Mo.; and M. M. Green, Carrollton, Mo., director.

these in time. What we need now is to divert some of these acres into protein products which will build up the land for the future. We must, he emphasized, keep ahead in the race with population. Lagging behind has ruined many other civilizations. To insure a constant and an ample supply of food of the right kinds we must all cooperate with the farm program.

Modern Soil Conservation Under the heading of *Modern Soil Conservation* Dr. Hugh Bennett, chief of the Soil Conservation Service, U. S. Dept. of Agriculture, gave his listeners a sometimes serious and sometimes very humorous selection of items based on his many years of experience in this field in this country and abroad. He opened by pointing out that conservation is revolutionizing American agriculture and that agstone is playing an important part. He traced the development of the program, slow at first, from 1933 through the CCC camp days and up to the present. He gave warm praise to Dr. William A. Albrecht for the rapid enlightenment of the public on the subject of nutrition. He considers Dr. Albrecht to be the leading authority on this subject. He described the conservation problem as a race between the limited amount of land and our growing population. He dwelt on the difficulty of getting the public aroused to a realization of the growing menace, as people had felt until recently that the amount of new land was unlimited. Even now, he said, about 500,000 acres of land each year are being ruined forever and an even larger amount is being seriously damaged. We are now, said Dr. Bennett, using about 100 conservation measures. His recent tours through many foreign countries disclosed only a few we have not been using. No other country was using more than 35 measures.

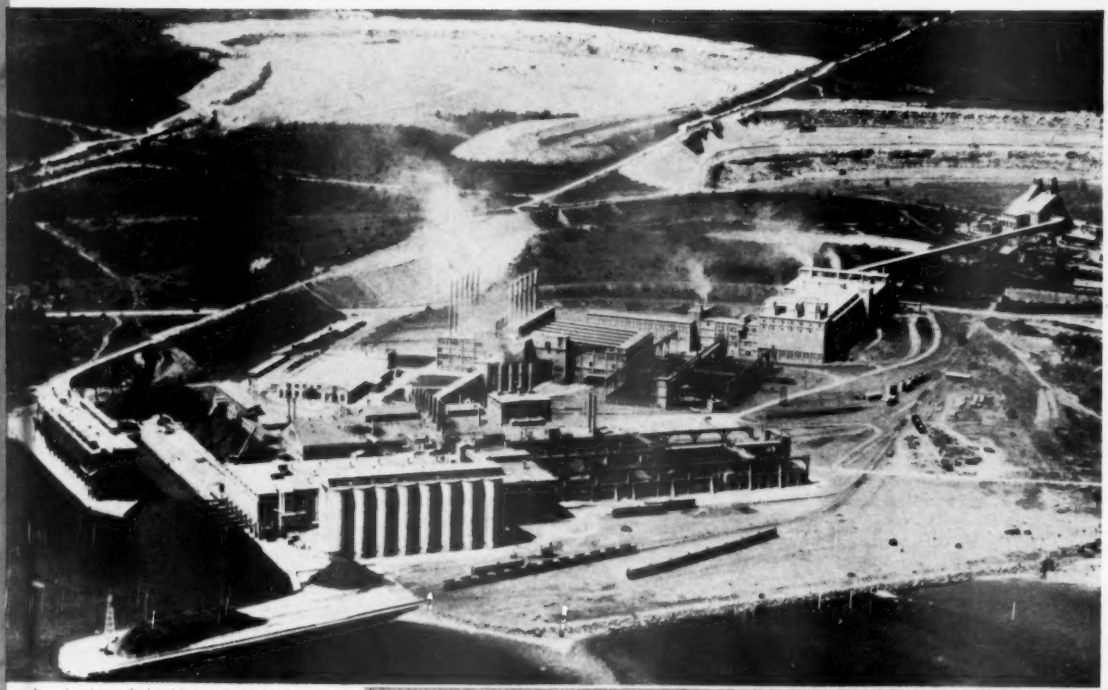
Our Conservation Program H. L. Manwaring, deputy assistant administrator for production of the U. S. Dept. of Agriculture, described *The Agricultural Conservation Program.* He said that to make the program effective required the cooperation of everyone and that, although some of the government agencies in this field overlap, this is better than inadequate coverage where our stakes are so large. These departments, he said, are cooperating better now than ever before. Mr. Manwaring declared that this country is being subjected to a three-way squeeze, the first in land. We first went west to find more virgin soil and are now turning back east to reclaim some of the waste land formerly passed up. The population squeeze, he said, is forcing us to try to make the land produce more, and the success we attain here will help reduce the population and nutrition squeeze.

Mr. Manwaring pointed out that we do not have to leave this country to find undernourished people farming unproductive land. These can be found within 70 miles of Washington and in other sections as well. Education and know-how are one thing, he said; but when a poor farmer gets some money he usually and naturally spends it on the immediate needs of his family, such as food and clothing. Such people, he said, must be helped from the outside, and the general public must be educated up to the fact that the farm problem affects them all and needs their help. He said that plans are to increase the amount of agstone used, but the belief is growing that the farmer should carry more of the load so that more can be done with the limited amount of money available. He warned producers that they will have to work harder to sell agstone, partly due to the reduced income of the farmers. He advised them to keep the cost and price of agstone down as low as possible and suggested that in some areas it is not necessary to grind as finely as the present practice. He also urged reduction of the extent to which bags are being used. Mr. Manwaring pointed out that there is much yet to be learned about agstone and its effects. In some areas, he stated, soil tests indicate no need for lime; and yet when it is added, the crops are increased and improved. He warned that the purchase order plan is coming into disrepute due to some misuse of funds and pointed out that producers can help to check this trend. There have also been some cases where producers have shortweighted farmers or delivered less material than they were entitled to. We must, he said, keep the program clean if we expect it to continue. Congressmen and others are watching it closely.

Business Outlook In discussing *The Business Outlook,* H. B. McCoy, director of the Office of Domestic Commerce, U. S. Dept. of Commerce, said that much of the credit for the high volume of agstone business is due to the higher income of the farmers. Support of farm income is necessary, he said, in order to retain prosperity. He then traced the economic curve, pointing out that public works is taking over the load. He urged that businessmen help by trying to sell larger volumes at lower profit margins. The agstone industry, he indicated, needs much more publicity and promotion in order to compete for the farmer's dollar with radios, refrigerators, etc.

Facts and figures to add fuel to the popular argument among cement men as to which is

America's Largest Cement Plant



An air view of the Huron Portland Cement Company's plant at Alpena, Mich.

Right: A panoramic view of Canada Cement Company's main plant at Montreal East. Boat loading dock at extreme right.

WHEN cement men get together, sooner or later the conversation seems to get around to the question: "Which is the largest cement plant in the United States, on the North American continent, or in the world?" We have heard so many claims and counter-claims—all in a friendly vein, of course—that we decided to try to settle this relatively unimportant question for the present, at least. We wrote to the four larg-

Seen from the air, Permanente Cement Company's facilities at Permanente, Calif., look like this.

est cement plants in North America and obtained the latest capacity data from three of them. The fourth plant—which was believed to be somewhat smaller than the other three, but had often been mentioned as a candidate—bowed out, virtually conceding the lead to the others.

The three cement plants for which figures were submitted are: Canada Cement Company, Ltd., Montreal, Quebec, Canada; Huron Portland Cement Company, Alpena, Mich.; Permanente Cement Company, Permanente, Calif. The capacity figures given for these plants follow:

Daily Plant Capacities
(All figures in U. S. Bbls.)

	Clinker	*Cement*
Canada	15,830	16,830
Huron	17,000	24,000
Permanente	18,000	18,500

Judging from the above figures it would appear that the Huron plant now has by far the largest clinker grinding capacity of any plant in North America, with Permanente second and Canada a good third. In clinker producing capacity Permanente leads, with Huron second and Canada Cement third.

Canada Cement Company

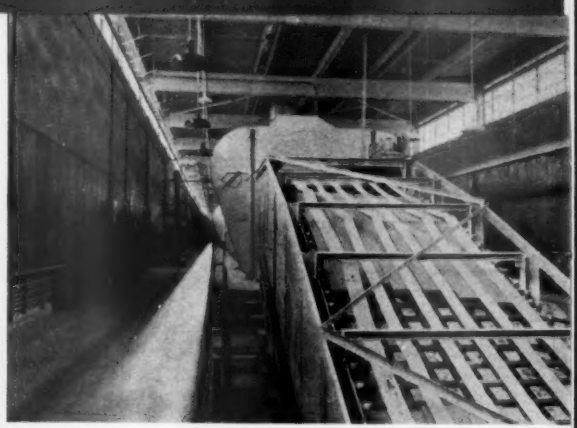
The Montreal East plant of Canada Cement Co. was built in 1905-1907 by the Lakefield Portland Company, and in 1910 became the main plant of the Canada Cement chain. It was enlarged then and again in 1929-31, when it was converted to the wet process. At that time the 17 small original kilns were supplemented by four 11¼- and 10- and 11¼- by 352-ft. units which are still in use. In 1938 direct coal firing was installed. In 1942 Kiln No. 5 (9- and 8- and 9- by 324-ft.) was added. The two-year improvement and expansion program just completed included the addition of 11¼- and 10- and 11¼- by 430-ft. Kiln No. 6 and a Cottrell electrical precipitator. The crushing, raw-material and clinker-grinding, storage and other departments were expanded and improved at the same time to keep pace with kiln capacity. The plant now has a clinker producing capacity of 15,830 bbls. and can produce 16,830 bbls. of cement daily. A complete description of this plant will soon appear in these pages.

Huron Portland Cement Company

The Huron Portland Cement Company's plant at Alpena, Mich., which was completely described in the July, 1949, issue, following completion of a multi-million-dollar ex-

(*Continued on page 71*)

National Gypsum's



A view of the steam-heated 8-deck dryer in the National Gypsum Company's board plant at Baltimore. This unit is 322 ft. long, and produces over 100 lineal feet per minute of 4-ft. wide wallboard.

Left: A dockside view showing the long 30-in. conveyor which moves crude gypsum into either covered or open storage areas. The boat is one of three which bring in the ore from National's mines in Nova Scotia.

Below, left: Ore is unloaded with a clamshell and dumped into this movable unloading tower, which feeds the belt conveyor.

another ON THE SPOT picture

PLACED in operation just a little over two years ago, the National Gypsum Company's gypsum calcining and wallboard production facilities at Baltimore, Md., set standards in design, layout, and efficiency that seem almost certain to endure for many years. Built at a cost of several million dollars, the plant is located on a fine 15-acre site in the Canton district of industrial Baltimore. Its tremendous capacity—enough gypsum wallboard, lath and plaster to build 40,000 homes a year—places it among the largest, as well as the most modern, plants in the gypsum industry.

Among the many outstanding features of this important industrial development are the excellent dock facilities, which were created to handle some 300,000 tons of incoming crude rock during the 6-month period of each year when shipments can be made from the company's mines in Nova Scotia. The pier, a cellular structure with a massive reinforced-concrete deck, supports a 65,000-ton rock storage building in addition to complete facilities for unloading and reclaiming.

An additional 60,000 tons of crude rock is stored in an open pile between the covered storage shed and the main mill and warehouse building. Rock is distributed uniformly over this open storage area by a 30-in. overhead belt conveyor which runs the full length of the unloading dock.

Three company-owned bulk transports, the *Dingwall*, the *Cheticamp* and the *Walton* (all named for Nova Scotia communities where the gypsum is mined), each year haul in excess of a million tons of crude rock to National's four seaboard plants located at the Bronx, New York City; Portsmouth, N. H.; Savannah, Ga.; and Baltimore. The average shipment is approximately 9,500 tons. The rock is crushed to minus 5-in. at the loading points and thoroughly washed to remove impurities.

Baltimore Plant

Industry's most modern plant turns out 20,000,000 sq. ft. of wallboard, 6 to 7,000 tons of plaster monthly

By WILLIAM M. AVERY

Unloading At the Baltimore dock a McKarin-Torrie crane with a 2½-cu. yd. clamshell unloads the crude gypsum at the rate of about 500 t.p.h. into a movable Robins unloading tower which serves the 30-in. dock conveyor. The latter is the first of a series of five belt conveyors which make up the unloading and reclaiming systems. It is about 775 ft. in length and operates at a speed of 415 f.p.m. An inclined section at the far end of the covered storage building elevates the rock to roof level, where it can be cross-conveyed to the 30-in. return belt which distributes the rock within the building. Rock is discharged from any point on this conveyor by means of a power-driven Link-Belt tripper.

Alternately, instead of entering the covered storage area, the crude rock can be delivered to the open storage pile by means of an overhead 30-in. belt conveyor which is an extension of the dock-side conveyor. Distribution from this conveyor is also by means of a power-driven tripper.

Reclaiming Rock is recovered from the 65,000-ton covered storage area by means of a 24-in. by 600-ft. reclaiming belt which is fed by a 3-ton P & H crane. This reclaiming belt discharges into the boot of a bucket elevator which returns the rock to the main overhead conveyor. Open storage rock is reclaimed by means of bulldozers and a bucket elevator which discharges onto the covered conveyor entering the main mill building.

Preparation The crude rock is prepared for calcination by a process which involves crushing, screening and drying. It is first screened on an F-600 Ty-Rock vibrating screen fitted with ¾-in. cloth, from which oversize drops into a Pennsylvania ring crusher set at

A general view of the National Gypsum Company's fine plaster and board plant at Baltimore, Md. About 60,000 tons of crude gypsum is stored in the open pile in the foreground.

C. E. Anderson, plant manager at Baltimore, and D. C. Burrill, office manager.

1½ in. The flow is then separated into a fine and a coarse fraction by means of a second Ty-Rock screen, and the two sizes are stored in steel bins of sufficient capacity to supply the entire plant for a day and a half without additional feed from the storage piles.

Two short conveyors under the bins deliver the rock to a Hardinge rotary dryer. The dry rock is recrushed in a Pennsylvania reversible hammermill and then separated into three products by a 16-ft. Raymond air separator. All pea-sized rock goes from the separator to 550-ton mill feed bins, the fine product to the kettle feed bins, and an agricultural grade to bins located over a single-tube packer.

The coarse rock is fed to a battery of five Raymond roller mills, after which the ground products are recovered by 8-ft. Raymond cyclonic dust collectors which are vented to 8-ft. Raymond tubular-type bag collectors. The ground gypsum (about 85 percent minum 100-mesh) is then sent to the kettle feed bins.

Calcining Uncalcined gypsum contains about 20 percent chemically-combined water, which can be removed only by the application of heat. In the Baltimore plant calcination is carried out in four oil-fired Ehrsam kettles each of which holds about 20 tons of material. Rotating shafts agitate the material while the temperature in the kettles rises to about 350 deg. F.

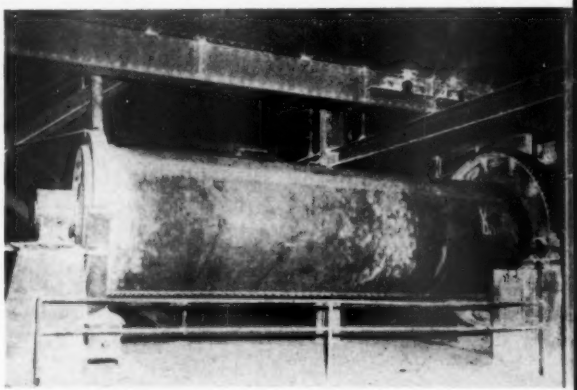
Key figure in National Gypsum's post-war expansion of production facilities, including the building of the Baltimore plant, was Fred A. Manske, general production manager. With more than twenty-five years of experience in the gypsum industry, Mr. Manske supervises the operation of the company's 23 widely scattered plants, mines and quarries.

About three-quarters of the original water content is thus driven off as steam. After two hours in the kettles the hot, dry mass, which is referred to in the trade as stucco, is dumped into pits. Operating on 2-hour cycles the four kettles produce about 750 tons of stucco in a 24-hour day. The stucco is screened by Tyler Hum-mer scalping screens to remove foreign particles and then delivered to either the board plant or the plaster mill.

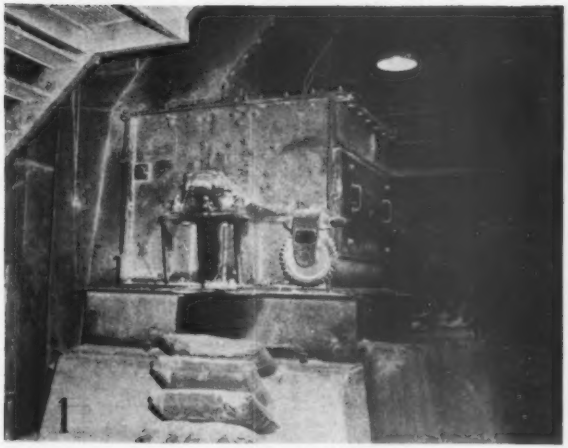
Plaster Mill Stucco that is to be used for wall plaster is reground in a 7- by 22-ft. F. L. Smidth tube mill to elongate the fiber, and then conveyed to the mixing bins, where fibrous material, sand, retarder and other ingredients are added. The ingredients for the various plaster formulae are accurately weighed and then thoroughly mixed in Ehrsam mixers, of which there are four under the tube mill bins and one each under the gauging plaster bin and the molding plaster bin. Two 4-tube St. Regis packers handle the tube-milled product, and there are two 3-tube machines for packing gauging plaster and molding plaster. There is also a single-tube St. Regis packer which serves the agricultural gypsum bin. It is said that in an hour's time the packing machines in the Baltimore plant can bag enough gypsum to plaster 70 homes of average size.

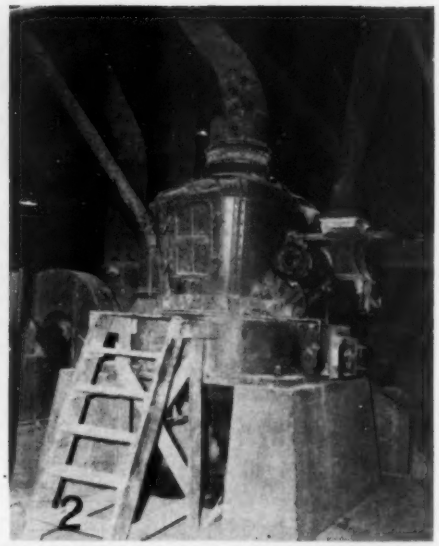
Board Plant The wallboard plant is a long (775 ft.) narrow (100 ft.) structure which is three stories high at the highest point. It covers an area of almost two acres, and the board machine alone, with its intricate system of mixers, belts and dryers, is a quarter of a mile in length.

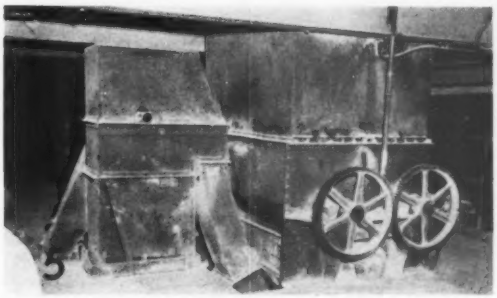
Hot stucco is conveyed from the Ehrsam calcining kettles to three 250-ton silos for cooling. From these silos it is delivered to a constant-head bin which feeds a high-speed wet mixer, the rate of flow depending on the thickness of the board being manufactured and the speed of the board machine. Scrap



Stucco for wall plaster is reground in this 7- by 22-ft. tube mill to elongate the fiber.
Left: A view of the 65,000-ton covered storage shed adjacent to the unloading dock.







1. In preparation for the calcining operation the dried rock is pulverized in this reversible hammermill.

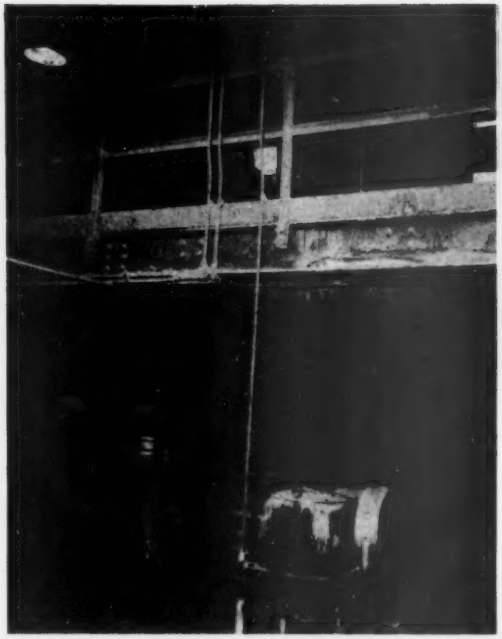
2. One of the five roller mills used in preparing the gypsum rock.

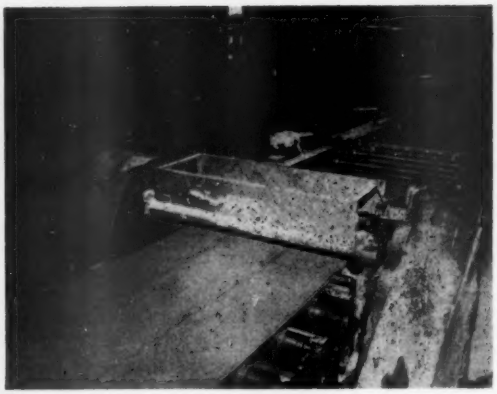
3. Power pack for one of the many dust collectors which help make the Baltimore plant one of the cleanest in the entire industry.

4. The calcining kettles are oil-fired, and each holds about 20 tons of material.

5. One of the batch mixers in which the ingredients for the various plaster formulae are mixed together.

6. Bagging fibered gypsum plaster in one of the multi-spout packing machines.

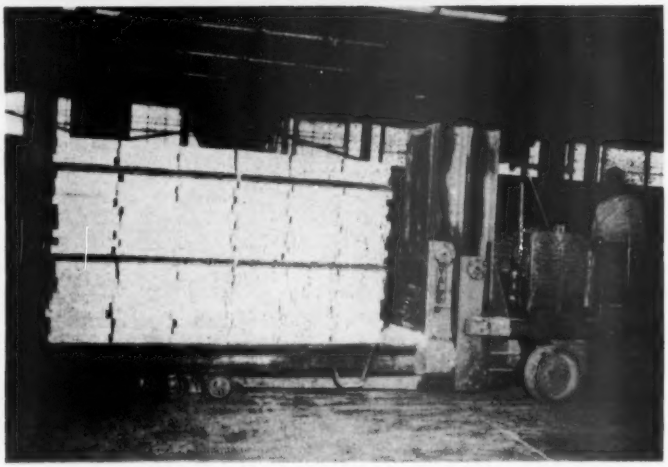




A view of the cut-off knife which shears the boards into the required lengths.

Left: This dust collector unit is located in the mixing room of the board plant.

Below, left: Finished wallboard is handled entirely with platform lift trucks.



paper, water, a foaming agent, accelerators, corn starch and other ingredients are added to make the creamy paste which is fed onto a moving sheet of heavy paper. Two forming cylinders press the plaster to the desired thickness, apply the top sheet of paper, and seal the edges of the board. The resulting continuous plaster sandwich moves along on a belt and roller table which is some 500 ft. long, traveling at a speed which produces over 100 lineal feet per minute of 4-ft.-wide wallboard.

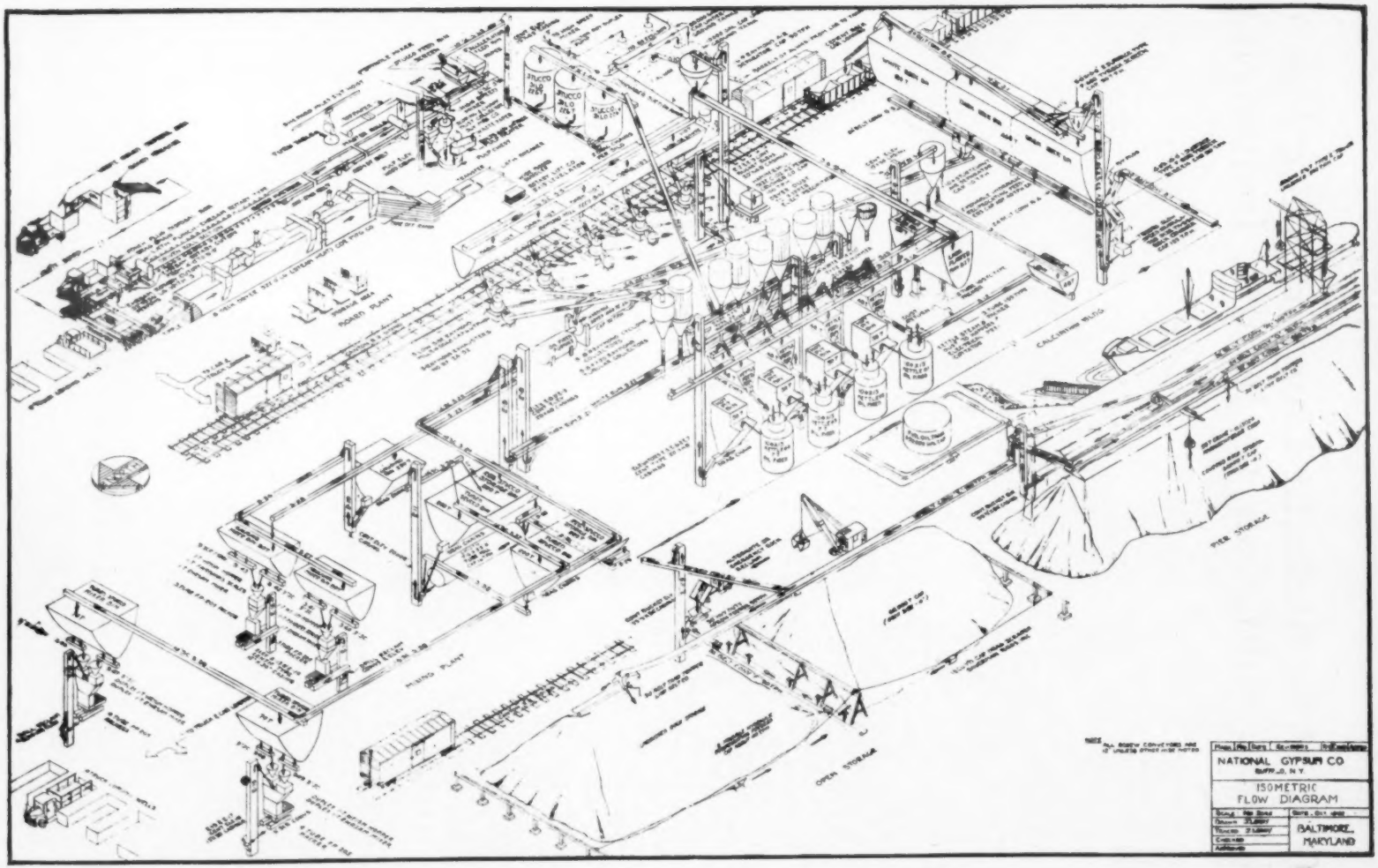
Near the end of the belt the hardened board is sheared into measured lengths by an Ehrsam cut-off knife, and rolled into alternate decks of an 8-tier steam-heated Coe dryer. The 24-ft. transfer table has live rolls which feed the green board into the dryer. A unique elevator, controlled by an electric eye, automatically feeds the board into the various tiers. Steam for heating the dryer is furnished by a 400-hp. Combustion Engineering Type VU oil-fired steam generator with a capacity of 50,000 lbs. of steam per hour. Fuel oil is received at the plant in 300,000-gal. barges and stored in underground tanks which hold 750,000 gallons. Consumption runs from 10 to 11,000 gallons per day. There is also a 100-hp. oil-fired Keeler boiler used as a stand-by and for space heating. Bailey automatic instrument controls are used in the steam plant.

It takes about an hour for the board to travel the full length of the Coe dryer, and during this time about three-quarters of a pound of water is evaporated for every square foot of wallboard made. At the discharge end the board slides down a cooling ramp to the first floor of the building, where it is inspected, bundled, and loaded into freight cars or trucks. Two Yale and Towne and two Towmotor lift trucks handle the finished product on wood pallets. The wallboard storage room has capacity for 9,000,000 sq. ft. of board.

Dust Collectors Not the least remarkable of the many features of National's Baltimore plant is the almost complete control and elimination of dust at every stage of the process. The system of collectors which achieves this minor miracle is one of the most complex and complete which we have seen anywhere. Because the character of the dust generated differs considerably at various points in the process, the dust collectors represent a considerable range of types and makes.

The five roller mills which grind

(*Continued on page 74*)



Flow diagram of the National Gypsum Company's plant at Baltimore, Md.

300-T.P.H. Straight-Line Crushing Plant Newest Addition to Iafolla Industries

another ON THE SPOT report

THE outstanding new 300-t.p.h. plant of the Iafolla Crushed Stone Company on Peverly Hill Road, near Portsmouth, N. H., is a monument to the equally notable career of John Iafolla. As a boy of nine in Italy he left his well-to-do father's home and went to work on a railroad construction gang. By the time he was 15 and had worked on many large construction projects, he got the urge to try his luck in the New World. When he landed in Boston in 1910, he was 16 years of age. For two years he worked in Madbury, N. H., growing roses and learning the language and customs of this country. He next bought a grocery but after a year sold it and returned to his first love, construction. Starting out sharpening drills and shoeing horses, he graduated to pick-and-shovel work, pouring concrete, carpentering, erecting steel, etc. He soon became a foreman, then assistant superintendent, and throughout the early 20's was superintendent for various contractors in many sections of New England. His most important feat during this period was the construction of the scenic Mohawk Trail in Western Massachusetts, which took two years.

• A general view of the Iafolla Crushed Stone Company's plant near Portsmouth, N. H., showing the straight-line design. The primary crusher building is in the foreground.

In 1926 he went into business for himself and was awarded a small road job. He progressed rapidly and in 1930 was awarded four contracts totaling about $600,000. Even during the depression he was kept busy and got progressively larger jobs. In 1939 he built eight bridges and 2½ miles of the four-lane roadway of the Maine-New Hampshire Interstate Highway south of Portsmouth. To supply fill for this work at a reasonable cost he bought a 90-acre tract of land at the present plant site and on it built a construction yard.

In 1944 he decided to retire, selling all of his equipment. He soon found that he could not stand idleness, however, and began to prospect his property with the idea of producing either crushed stone or sand and gravel. A survey made by The Thompson & Lichtner Co., Inc., engineers, of Boston, Mass., revealed a trap rock deposit of high quality in sufficient quantities to justify erection of a crushed stone plant. His next step was to purchase the adjoining property for a present total of 250 acres. After looking at various other operations he called in several engineers to help design the plant. The design was a cooperative project of Mr. Iafolla, the Allis-Chalmers Manufacturing Company, and the engineers of other companies supplying equipment, chief of which was the Eastern Engineering Company of Boston, who designed and built the conveyor system.

The result is a simple and compact straight-line operataion which has done everything expected of it and more. Completed in 1947, it did not get into full production until late in 1948 because the quarry had to be developed. In 1948 the production was over 150,000 tons and in 1949 it was over 300,000 tons. Originally rated at 200 to 250 t.p.h., the plant has several times exceeded 3500 tons in ten hours. Even better results are expected as the quarry is further developed. By adding more quarry and hauling equipment it is believed that a capacity of 450 t.p.h. could be obtained should this ever be necessary. The plant is well balanced for maximum production,

• A quarry view in the early stages of development, with the plant in the background. Shown are shovels, a crane with a drop ball, and trucks.

and quarry problems are studied well in advance to keep a steady flow of rock coming to the plant. The entire operation from quarry through loading requires a crew of only 16 men, not including office and management personnel. Seven sizes of stone can be made in this plant at one time, and no washing is done.

All the plant buildings are of modern design and construction and are of steel, concrete and wood. Corrugated iron siding and roofing is used throughout. All belt conveyors between buildings are similarly housed. The plant office is a commodious and attractive building and serves all the affiliated concerns.

We neglected to mention that Mr. Iafolla is again an active contractor. He has completed several contracts this year, including a bridge and approximately five miles of roadway, in addition supplying the Savin Construction Company of Hartford, Conn., with about 250,000 tons of crushed stone for a 15-mile stretch of the New Hampshire Toll Road, a 4-lane super-highway which will connect with the Maine Toll Road.

Quarry The deposit is said to be one of the hardest trap rocks known, with losses as low as 7 percent in Los Angeles Rattler tests. It has a specific gravity of 2.80, weighs approximately 2600 lbs. per cu. yd., and meets every specification. It is in the form of a ridge, a fact which made its development a slow process. The overburden is light and is removed during the winter with idle construction equipment. The quarry face is now 500 ft. long and 72 ft. in maximum height. The ultimate maximum of 80 feet will soon be reached.

Drilling of 6-in. blast holes is done with two Bucyrus-Erie 27T churn drills mounted on crawler treads.

• John Iafolla, founder of the Iafolla Crushed Stone Company.

Holes are drilled on 22-ft. centers and with 20-ft. burden to about 5 ft. below the quarry floor. Due to the hardness of the material only from 1 to 3 ft. of hole is obtained from a bit before it is resharpened.

Dupont "Nitramon" is used for blasting, and 7- or 8-hole single-row shots are made. Holes are fired with 5- to 10-hundredths of a second delays by means of a Dupont delay electric switch. This has resulted in a minimum of vibration which is important as the plant is in a fairly well settled area and is only a short distance from Portsmouth.

Other drilling in the quarry is done with two Cleveland D14 wagon drills. Air for these drills and for the jackhammers used for secondary drilling is supplied by a 500-c.f.m. Chicago Pneumatic diesel-powered portable compressor. Most of the secondary breakage, however, is done with a skullcracker or drop ball which is also used to clean down the face. The ball is dropped from the 65-ft. boom of a Northwest crawler crane.

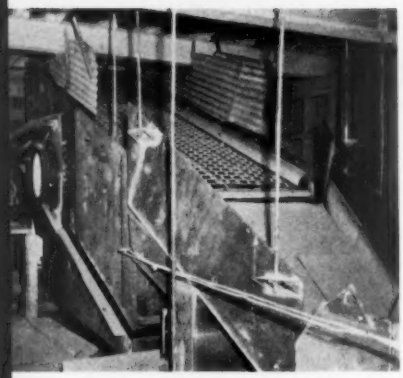
Loading of the stone in the quarry is done by a Northwest No. 6 diesel shovel with a 1½-cu. yd. Amsco dipper. An International TD14 tractor with a bulldozer cleans up in the quarry and maintains roadways for the quarry trucks. Two Easton semi-trailer units, each with two 11-ton side-dump bodies, are drawn by Sterling tractor trucks. The distance to the plant is about 300 ft.

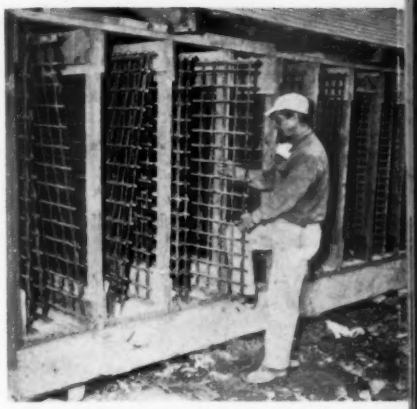
Crushing At the plant these trucks can discharge from either side into the primary crusher. This is done in the usual manner with heavy concrete abutments to take the impact of the Easton bodies as they are tipped and dumped by the Easton elbow-type dumping mechanism which is actuated by a Shaw-Box hoist. There is also a back-up approach to the crusher for a 12-ton rear-dump truck which supplements the trailers. Over the crusher there is an 80-ton chain block for handling repair parts. At the time this plant was visited, this was being used to remove the spider of the 30-in. Allis-Chalmers gyratory crusher while the mantle was being rezincked. A 5-ton electric hoist operated the stone hook. Controls for the hoists are so arranged that only one man is necessary in the crusher but two men are stationed there to insure steady production.

The primary crusher is set to produce minus 4-in. stone, and its product is discharged on the 42-in. by 217-ft. main belt conveyor to the top of the secondary crusher building. There it is discharged on the 5- by 14-ft. Allis-Chalmers 3-deck vibrating scalping screen. This has 3-, 2-, and ¼-in. screen cloth on its

• Left: An 80-ton chain hoist removing the spider of the 30-in. gyratory primary crusher while the mantle was being rezincked.

• Right: The two crawler-mounted churn drills, with the service truck at the right.





• Left: The 5- by 14-ft., 3-deck scalping screen over the three reduction crushers. • Right: Racks in which a wide variety of sizes of wire screen cloth are stored.

three decks, respectively, from top to bottom. The oversize (3- to 4-in.) from the top deck is chuted into a No. 848 Allis-Chalmers Type R reduction crusher set with 1½-in. maximum opening. The material passing over the middle deck—2- to 3-in.—is usually discharged into one of the two No. 636 Allis-Chalmers Type R reduction crushers but can be split to both of them. One of these crushers is usually set with a ⅝-in. opening but is sometimes closed down to ½-in. The second No. 636 crusher is set at ⅞-in. maximum opening. All three crushers are mounted on high concrete piers, so that no conveyor pits are required, leaving enough head room for changes in plant design if these are ever required.

The products of all three secondary crushers are carried on a 36-in. by 90-ft. return belt conveyor which discharges back onto the main belt conveyor to the scalping screen.

Screening and Storage All the material passing through the middle and bottom decks—2-in. minus—drops on the 36-in. by 214-ft. belt conveyor to the top of the screening building. There it is discharged on a 5- by 14-ft. Allis-Chalmers 2-deck screen with 1½- and 1-in. wire cloth. Material over the top deck—1½- to 2-in.—is chuted into one of seven 320-ton reinforced concrete bins which support the screening structure. The 1- to 1½-in. material off the bottom deck of this screen is chuted into a second bin.

The minus 1-in. stone through the bottom deck of the first screen is chuted to a second 5- by 14-ft. Allis-Chalmers 2-deck screen. This has ⅞- and ¾-in. wire cloth on its top and bottom decks respectively. The ⅞- to 1-in. stone off the top deck and the ¾- to ⅞-in. stone off the bottom deck are chuted into individual bins.

The minus ¾-in. stone through the bottom deck of this screen is carried on a 24-in. by 40-ft. slightly inclined belt conveyor to the third and final 5- by 14-ft. Allis-Chalmers 2-deck sizing screen. This has ½-in. cloth on its top deck and ¼- by ¼-in. slotted wire cloth on its bottom deck. The three products—½- to ⅞-in., ¼- to ½-in., and ¼-in. minus—are chuted into the last three bin compartments.

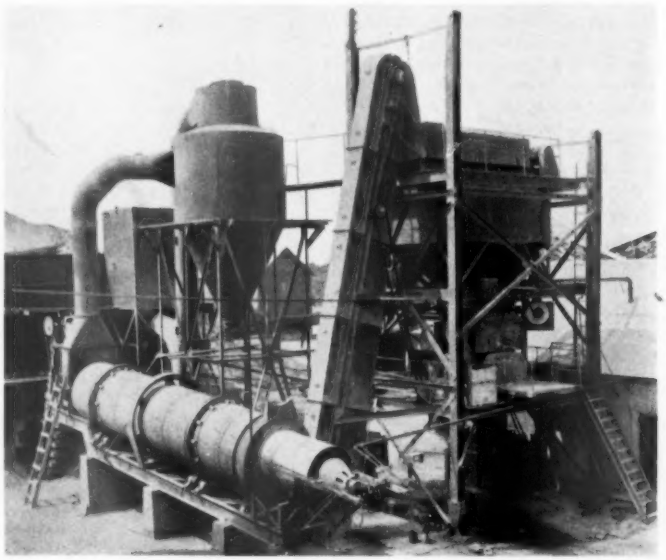
All shipments are made by truck, and there are two rows of lever-operated sliding gates under the bins. At present only one row is being used. Gates have also been provided on the outside of the bins for possible future use for carloading or for the installation of stockpiling conveyors or of means for the reduction of stored sizes. A considerable tonnage of stone is stockpiled by trucks, and this is reclaimed by a Barber-Greene loader or a Northwest shovel with a 1½-cu. yd. Amsco dipper.

Features The belt conveyor idlers and pulleys in this plant are Chain-Belt Rex-Stearns, and Hewitt-Robins conveyor belts are used throughout. The original belts have carried over 600,000 tons of stone and look good for much more service.

Manganese steel chutes are used throughout the plant, at screen ends and elsewhere. Formerly cold-rolled steel was used, but it was found that manganese steel, at very little higher first cost, lasted nearly five times as long.

Electrically the plant is as outstanding as it is in other respects. It is equipped for automatic sequence starting and stopping, with emergency push-button switches at every unit of equipment and light signals at every important point.

Allis-Chalmers electric motors are used throughout the plant, most of them in connection with V-belt drives. The primary crusher is driven by a 250-hp. slip-ring induction motor, the No. 848 reduction



• The 100-t.p.h. hot-mix asphalt plant operated by the company.

crusher by a 125-hp. motor, and the two No. 636 reduction crushers by 75-hp. motors.

The company operates its own repair shop where all necessary repairs are made except highly-specialized work such as electric motor rewinding, etc. Equipment in the shop, which is located near the primary crusher building, includes a Bucyrus-Erie 8BD drill sharpener and two oil-fired furnaces for the churn drill bits.

An example of Mr. Iafolla's unusual foresightedness is the fact that he maintains a $150,000 stock of repair and replacement parts and supplies which makes almost impossible any serious delays to production. The complete stock ranges from nuts and bolts up to 250-hp. motors, spider, mandrel and shells for the primary crusher, spare shovel dippers, etc.

Especially notable is the stock of wire screen cloth in all currently needed sizes, any of which might conceivably be called for. These screen sections are stored in neat and accessible racks. The cloth used is Wissco Super-Tempered precision space cloth made by the Wickwire Spencer Steel Division of the Colorado Fuel & Iron Corp. This cloth was put on the market early in 1947, and Mr. Iafolla started using it in April, 1948. It is oil-tempered by a process which produces a very hard steel but imparts a ductility which permits it to be formed and woven by special powerful weaving looms. The combination of hardness and ductility gives this cloth unusual resistance to abrasion and fatigue.

Asphalt Plant The company also has an Iowa Manufacturing Co. Cedarapids 100-t.p.h. hot-mix asphalt plant which is located a short distance from the screening building and on the same level. Three sizes of aggregate are ordinarily used in this plant — a coarse size, ¼- to ½-in., and minus ¼-in. or dust. These are trucked up an earthen ramp to bins from which they are discharged by electric vibrating feeders into an oil-fired rotary drier. A bucket elevator discharges each size into a separate bin compartment. The aggregates and asphalt are weighed out from the bins into two separate batchers, each equipped with a dial scale.

A Cleaver-Brook 100-hp. automatic steam boiler, also oil-fired, supplies the steam for heating the bitumen. The boiler is equipped with a Minneapolis-Honeywell Pressuretrol and a Cleaver-Brook booster.

Until recently John Iafolla was sole owner of the company and did business as an individual, being his own manager. Early in 1948 the construction operations were taken over by the Iafolla Const. Co., Inc. In 1949 the stone crushing operations were taken over by the Iafolla Crushed Stone Co., Inc.; but all other operations were continued as before by John Iafolla, doing business as the John Iafolla Co. Mr. Iafolla is also president and treasurer of both corporataions. The executive personnel is made up of the following: Ferris Bavicchi, executive assistant; Lawrence Fuller, production manager; John Cerabona, plant foreman; Frank Iafolla, general assistant; Sayward Gilbert, engineer; Charles Watson, repair shop foreman; Francis Levangie, equipment and yard foreman.

Largest Cement Plant

(*From page* 61)

pansion and improvement program late in 1948, was not a contender for this distinction before. Its 50 percent increase in capacity was obtained by the addition of four 10- by 153½-ft. kilns, grinding mills, direct-firing coal pulverizers, etc. to Mill II. These kilns supplemented the original 8- by 110-ft. kilns installed in Mill I in 1907, and the six 10- by 153-ft. kilns in Mill II installed after World War I. Each mill has its individual clinker storage, but both have the same raw material preparation and storage, clinker grinding, and cement storage and packing departments. The capacity of this plant now is 17,000 bbls. of clinker and 24,000 bbls. of cement daily. It is a dry-process plant.

Permanente Cement Company

The Permanente, Calif., plant of the Permanente Cement Co. has probably been more highly publicized than any other cement plant, especially in view of the fact that it is only 10 years old. This has been due in part to the many things which have been done to enlarge and improve this plant, and in part to the publicity-mindedness of its management. In the first place this plant set a record for construction speed. Ground was broken on June 29, 1939, and the first cement was produced on December 25 of that year, in time to begin deliveries on a contract of 5,800,000 bbls. for the construction of Shasta Dam early in 1940.

The original No. 1 and No. 2 kilns in this plant were, respectively, 12- by 450-ft. and 11½ and 12½- by 464 ft., and the plant incorporated a Separation Process Company system of flotation and closed-circuit wet grinding and a Cottrell electrical precipitator. For a short time this plant operated at about its original designed capacity of 7000 bbls. per day, but almost before the original equipment was operating the installation of a third kiln, identical to No. 2, was begun. Other departments were also enlarged, and in September, 1940, the capacity of this plant was 10,500 bbls. daily. (See December, 1940, issue for a complete description of the plant at this stage in its growth. Later articles kept our readers advised of further developments.) In 1942 a fourth 465-ft. kiln was added and the other departments were again expanded. Other improvements since have further increased the capacity to 18,000 bbls. of clinker and 18,500 bbls. of cement daily.

U. S. Gypsum Plans Expansion Of Jacksonville, Fla., Plant

U. S. Gypsum Company's Jacksonville, Fla., plant is scheduled to undergo expansion and enlargement which will make it "the largest gypsum mill in the Southeast," according to enthusiastic officials of the concern.

New production facilities which are scheduled to be installed in approximately six months will aid materially in relieving the current building materials shortage in this area. U. S. Gypsum spokesmen indicated that the present critical housing situation is due in great part to dwindling stocks of gypsum materials.

Because of the highly technical nature of the installations to be made, the work will be done by U. S. Gypsum engineers. It was stated that the enlarged plant (whose original capacity was tripled in 1941) will be equipped to furnish products to consumers in South Carolina, Georgia, Alabama, Mississippi, Louisiana, and Florida.

Investigation of Fluorspar Reported by Bureau of Mines

Fluorite of a minable grade was found in 10 of the 13 diamond-drill holes bored in three fluorspar veins near Jamestown, Colo., according to a publication released by the U.S. Bureau of Mines describing the results of an investigation conducted between December, 1945, and April, 1947.

A free copy of report of Investigations 4483, *Investigation of Jamestown Fluorite Deposits, Boulder County, Colo.*, by John E. Hild and E. W. Ames, Bureau mining engineers, may be obtained by writing to the Publications Distribution Section, Bureau of Mines, 4800 Forbes Street, Pittsburgh 13, Pa.

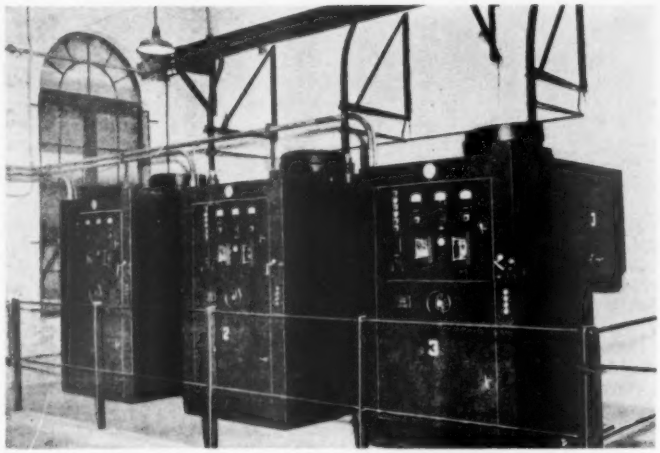
Dust Nuisance Licked by Precipitator At Lehigh's Sandt's Eddy Plant

By WILLIAM M. AVERY

Firm Also Installs Extensive New Facilities for Efficient Year-round Unloading of Cars

another ON THE SPOT report

IN our visits to cement mills throughout the country we are repeatedly astonished at the range and magnitude of the construction and improvement projects which are in progress almost constantly in most well operated plants. For example, several months ago we visited the Sandt's Eddy, Pa., plant of Lehigh Portland Cement Co. for the express purpose of seeing the first cement plant installation of the Koppers-Elex electrostatic precipitators. Before we got away our host, Plant Manager G. W. Hannaman, had shown us several unrelated projects, any one of which could justifiably have been designated as "major". They included a new and entirely modern change house (still under construction), extensions to raw material and coal storage designed to effect a 50 percent increase in capacity, a new craneway to serve the additional storage area, extensive new car unloading facilities, and modern thawing pits for handling winter shipments in hopper-bottom cars.



• Three mechanical rectifier power packs identical with those used in the Lehigh installation at Sandt's Eddy. There are two electrostatic fields, each served by a rectifier unit. The third unit is for standby.

• Left: A. G. Metzger, plant engineer, and George W. Hannaman, plant manager at Sandt's Eddy.

Dust Control Although the electrical precipitators were installed primarily to improve working conditions in the plant and avoid dust-nuisance complaints from neighboring property owners, they are, as a secondary benefit, retrieving considerable quantities of material for refeeding to the cement kilns. Up to the time of our visit no tests had been run to determine the exact amount of material recovered, but it has been estimated at from 80 to 150 tons per day.

The installation consists of a single precipitator with two electrostatic fields, each served by an Elex-Pak power unit which provides rectification of alternating current to d.c. unidirectional current. A third Elex-Pak can be thrown on the line through a special service switch whenever it is necessary to shut

• Below: A general view of the Lehigh Portland Cement Company's plant at Sandt's Eddy, Pa. The new precipitator is just to the right of the stack.

down one of the others for cleaning or maintenance.

Since the precipitator has two electrostatic fields (designated as inlet and outlet) arranged in series, it is possible with the separate power packs to operate on varied voltages in each field. This would be done if it were found during operation that different voltages were more effective when handling partially cleaned gas in the second field. Longitudinal vanes in the flue which feeds the precipitator help to distribute the flow of gas throughout the inlet field.

Each "Elex-Pak" unit consists of the entire electrical equipment necessary to convert the alternating current received from the plant to the 65,000-volt unidirectional d.-c. current required for serving the discharge electrode wires, and by means of which the corona is developed, creating a high-discharge field through which the dust-laden gas is passed. The pack consists of a special transformer, complete control cabinet, and a rectifier chamber. On the top of the latter is mounted a synchronous motor for driving the vertical rotor shaft inside the chamber. An air filter surrounds the motor, and a fan mounted at the top of the shaft inside the pack draws air through the filter into the chamber, driving out the small amount of ozone developed. The packs are said to result in important savings, as compared with open rectifier electrical installations, because no special substation is required.

Both the discharge electrodes (consisting of wire frames and the collecting electrodes (consisting of plates) are cleared periodically by an automatic mechanical rapping mechanism located in the control house at the top of the precipitator plant. The rapping is done by means of cams which lift and drop the hanger rods from which the frames and plates are suspended. Automatic clock timer controls cause the plates to be rapped for 3 minutes twice each hour, and the wire frames for 3 minutes three times each hour. The recovered dust falls from the collecting electrodes in a single gas lane at a time, passing out of the gas stream after a maximum fall of 26 inches. It drops into six hoppers, three of which are located under the inlet field and the remainder under the outlet field.

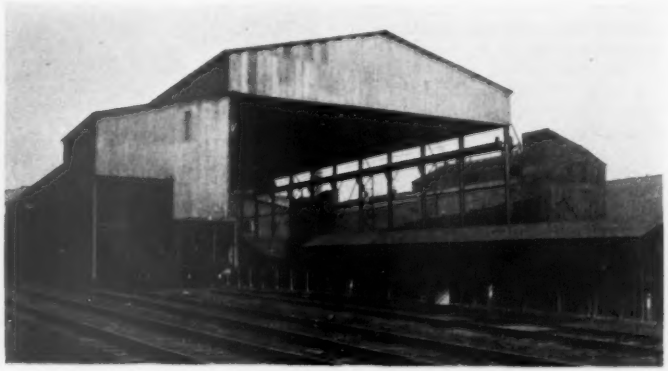
Thawing Pits During the severe winter of 1947-48 many railroad hopper cars were received which were frozen solid. Coal and wood fires were built under the cars to thaw them out, but at times it was often difficult to unload even one car in a shift. Demurrage charges accumulated at an alarming rate.

Determined to avoid a repetition of this experience, the company last year installed Hauck oil-fired radiant heat thawing pits at both ends of the storage shed. This work was carried out in conjunction with a general revamping of the entire set-up for handling coal, stone and other raw materials. There are four thawing pits, capable of handling two cars simultaneously, for coal alone. The arrangement for handling stone, iron, pyrite, cinders and sand, which are shipped to the plant by rail, includes two Hauck pits for thawing cars one at a time.

• A closeup of the electrostatic precipitator. The mechanical rectifier units and rapping mechanism are located in the pent house.

Unloading The pits are located under a new siding which runs the full length of the material storage building. All coal is handled from one end, while limestone, pyrite, cinders, and sand are unloaded at the opposite end. This arrangement places the materials where they are needed and eliminates most of the reloading formerly required.

As a further measure to expedite the unloading of cars, each of the two unloading stations is equipped with a Robins "Car Shakeout", a device that sets up rhythmic harmonies within itself which are trans-



• Left: Unloading of cars has been expedited by the use of car shaking devices. One of these units is available at each of the enclosed unloading stations.

• Below: A view of the raw material and coal storage building. Oil-fired radiant-heat thawing pits at the right are for unloading coal cars.

mitted by contact to the car and its content. The "Shakeout" is placed astraddle the car by means of a 5-ton Robbins & Myers overhead hoist located at each of the enclosed unloading points. With this final refinement, the only manual operation left in the unloading of materials has to do with pulling the winch-operated cables which are used for spotting cars.

With this new arrangement of facilities the unloading crew normally consists of two men who shift from one station to the other as required. Under favorable conditions they can unload a car of stone in less than 20 minutes, and a car of coal in about 30 minutes. Before the improvements were made it required a crew of 4 to 6 men to unload a car of stone, and the time ranged from 1 to 2 hours for each car, depending upon the condition of the stone and the type of hopper car. Under the old set-up, with a man assigned to coal unloading on each shift, it was possible to handle only six or seven cars a day even under the most favorable conditions. Experience gained in the past winter indicates that with the thawing pits and Robins' "Car Shakeout" it will be possible to unload seven or eight cars a shift under the very worst cold weather conditions requiring every car to be thawed out.

Storage In extending the storage shed, separate bins were built for stone, sand and pyrite cinders. These are fed in the following manner: the cars dump into an undertrack hopper, from which a 30-in. apron feeder conveys the material to the boot of a Jeffrey elevator. In the case of stone the elevator discharges directly into the bin. Sand or pyrites discharge onto a 24-in. Whiting traveling conveyor which feeds the center bin and the more distant bin.

The arrangement at the coal unloading station is almost identical except for the omission of the traveling conveyor. Each station is equipped with a Flory capstan for spotting cars.

The plant at Sandt's Eddy is one of fourteen operated by Lehigh Portland Cement Co. Others are located at Birmingham, Ala.; Oglesby, Ill.; Mitchell, Ind.; Mason City, Ia.; Iola, Kan.; Union Bridge, Md..; Alsen and Buffalo, N. Y.; Cleveland, O.; Fogelsville and Ormrod, Pa.; Fordwick, Va., and Metaline Falls, Wash.

plant may be increased. About 240 men are employed in operations and maintenance, plus about 35 salaried individuals in supervisory and clerical positions.

C. E. Anderson is plant manager at Baltimore and Donald C. Burrill is office manager. Officers of the company are Melvin H. Baker, president; L. R. Sanderson, vice-president in charge of operations; D. D. Crandell, vice-president in charge of sales; J. C. Best, vice-president in charge of special sales, and F. A. Manske, general production manager. Sales offices for the Baltimore area are maintained at the new plant.

National Gypsum Co.

(*From page* 66)

the kettle feed are connected to as many 8-ft. Raymond cyclone dust collectors, which serve to recover the coarse material after it leaves the mills. The cyclones are in turn vented to 8-ft. Raymond tubular collectors which trap the fine dust. Products from the cyclones and the tubes go to the kettle feed bins.

Each of the four Ehrsam calcining kettles is in circuit with a Koppers electric precipitator, and there is a similar unit on the intake end of the rock dryer, making five in all. The dust collected from the kettles is returned to them. There are also three Sly dust collectors at various locations in the plant. Two of these vent to the bins and packing machines, and the third recovers the dust generated by the operations of scoring and chamfering in the board plant. Two air separators, a 16-ft. Raymond and a 10-ft. Sturtevant, are used to recover products from the hammermills. As a result of these elaborate provisions, the Baltimore plant is one of the cleanest in the gypsum industry.

Production National Gypsum's newest plant has been producing 18 to 20,000,000 sq. ft. of wallboard per month, and from 6 to 7,000 tons of plaster per month. The company has definite plans for increasing the output of plaster, and there is also a possibility that production in the board

New Mexico Potash Mine Described in U. S. Bulletin

Mining methods and practices in a large potash mine in the Carlsbad mining district of southeastern New Mexico are described in a new publication released by Director James Boyd, U.S. Bureau of Mines.

The report is entitled *Mining Methods and Practices at International Minerals & Chemical Corp., Potash Mine, Eddy County, N.M.*

The publication was prepared by George T. Harley, manager, International Minerals & Chemical Corp., and Walter R. Storms, supervising engineer, Bureau of Mines, Silver City, N.M.

A copy of Information Circular 7511 may be obtained free from the Bureau of Mines, Publications Section, 4800 Forbes Street, Pittsburgh 13, Pa. The publication should be identified by number and title.
P.N. 58490

• At the quarry operation of the Wyandotte Chemical Company near Alpena, Mich., maintaining haul roads and cleaning up around a large P & H shovel is the task assigned to this torque-converter-driven Allis Chalmers HD-19 diesel tractor. Wyandotte also operates two other plants at Wyandotte, Mich., one manufacturing portland cement and the other limestone products.

Manganese Agricultural Stone

By W. D. KELLER
Professor of Geology
University of Missouri

AN undeveloped rock product of considerable potentiality which will fill an already existing need lies practically unexploited by the quarry industry. This is manganese carbonate agstone, a trace mineral counterpart of high calcium limestone or high magnesium agstone, wherein the manganese occupies the place of more or less calcium in the limestone.

It will be the purpose of this article to sketch the uses and demand for manganese agstone, to describe the kind of stone applicable, and to suggest the general location of suitable deposits to serve the Mississippi Valley farming section. Presumably another facet of the agstone quarrying industry awaits development.

NECESSARY FOR PLANTS AND ANIMALS

The need for manganese as a trace element in the soil to promote productivity of crops has been well established. The yield of snap beans and Irish potatoes was increased from 200 to 400 percent when manganese was applied to a deficient soil in Florida. Incomplete experiments suggest that the addition of available manganese to a deficient soil will increase the yield and improve the quality of strawberries, blackberries, tomatoes, egg - plant, lettuce, and roses. Claims have been made that it increases the resistance of some plants to insects. The blood of cattle suffering from Bangs disease was found subnormally low in manganese when compared to that of healthy cattle. Careful experiments have shown that manganese fed to cows with other trace elements improves the health, breeding capacity, and quality of milk, while complete tests are being run to determine its effect on Bangs disease.

This very brief survey is given to show the wide-range uses for manganese in the field of agriculture and the vital necessity for it, and to remove any doubt that there is a large market, practically virgin, for manganese agstone. (See references at end of article if more information on effects of manganese on plants and animals is desired.)

Available or Soluble Manganese Desired

The agstone market promises to open favorably for the relatively soluble or available-to-soil manganese rock and, therefore this article will emphasize the soluble variety. Common sense tells us that a nutrient for a plant or animal must usually be soluble in order to be assimilated or digested. Unfortunately many manganese deposits are of the black oxide ore type which are valuable to the metallurgist or chemist but which are scarcely soluble at all in ground water. Hence the deposits of the oxides of manganese are of little direct interest to the agstone producer. Before dismissing them, it should be recognized that they may be processed with acid, like sulphuric acid, and converted into a soluble, very useful manganese sulphate also in present demand.

The relatively soluble (in sour soil and in ground water) manganese mineral rock is manganese carbonate (technically named rhodochrosite, $MnCO_3$). This is a mineral relative of the calcium carbonate mineral which makes up a high calcium limestone, or of the calcium-magnesium carbonate which is dolomite, or magnesian limestone. These latter carbonates are effective in supplying calcium to acid soil because of their relative solubility.

Careful laboratory tests made by mixing silt-sized manganese carbonate with acid clay from Putnam (Missouri) soil showed high solubility of manganese by the acid clay (from reference by B. B. Konnur). After only 60 days' reaction between the acid clay and highest grade manganese - carbonate from Butte, Mont., the solubility and removal of manganese by the clay was at the rate of 35 milligrams per 10 grams of clay. In the same time the solubility was at a 20-milligram rate from crude, mixed Arkansas ore (furnished by courtesy of C. C. Sims, Cushman, Ark.). Other Arkansas ores ran as low as a 1-milligram rate; the latter was an oxide ore. There is no reason to doubt that pure manganese carbonate from any locality would react the same as the Montana variety.

W. D. Keller

Arkansas Carbonate Ore

Arkansas manganese ore deposits had long been considered to be of the black oxide type, but in 1924 a few specimens of the carbonate ore were identified by the U. S. Geological Survey. Since that time all grades of carbonate ore have been found in the region. The district has merited detailed work on it by government geologists, and the publication of a bulletin in 1941 entitled, *Manganese Carbonate in the Batesville District, Arkansas* by Hugh D. Miser. The booklet *U. S. Geological Survey Bulletin 921a* is out of print and must be consulted in public libraries. It is recommended for reading by anyone who may be interested in developing manganese agstone in the district. Besides Mr. Sims, already mentioned, the names of others active in the district are given.

The richest ore will probably be taken for metallurgical purposes because of competitive price, but leaner carbonate ore which is mixed with limestone is a potential agstone. Large tonnages of ore containing 10 percent to 15 percent soluble manganese (soluble in 10 percent acetic acid), expressed as elemental Mn, are available. Government estimates, although not specific, are of the order of millions of tons of low grade ore and manganese-bearing rock.

The price of manganese agstone has not been stabilized because of its infant position, although figures like $20 to $30 per ton, varying

(*Continued on page 78*)

WASHINGTON NEWS LETTER

By S. HERBERT UNTERBERGER

THE Congress is back and Washington is bustling with activity again. The President has sent down message after message—on the state of the union, on the budget, on the economic outlook, and on taxes. Congressmen are making statements as frequently as they can get newspapermen to listen to them. Government officials are waiting nervously to be called before Congressional committees to explain and to defend their programs and their budgets.

Despite all the flurry, it is unlikely that this session of the Congress will produce any special surprises. The second session of a Congress rarely does. The strength of the contending forces is pretty well established in the first session. Very few congressmen change their minds or their positions.

The most pervasive factor in a second session is the knowledge that an election is not far off. Particularly in the House of Representatives, where every member must face his electorate in November, each action is taken only after a careful appraisal of its political consequences. This atmosphere leads to much pointing with pride at the accomplishments of one's own group and viewing with alarm the derelictions of one's opponents, but it doesn't usually call forth much action.

Certain issues with vote-getting potentialities will be kept very much alive. The Democrats have one of their important issues ready-made—the Taft-Hartley Act. There is little doubt now that they would regard its repeal in this session as a great tragedy. They would lose their most potent campaign issue. The Republicans are placing their bets on the issue of the welfare state. While this has general appeal, it probably has less political value because it does not affect a specific, easily recognizable, well organized, or numerically strong group.

The State of the Union

The President's message on the state of the union appeared to devote only one word to that subject. He said it was "good." He attributed most of the credit for this desirable state of affairs to a variety of measures, all of which had received his sponsorship in the past.

As for the rest of the message, it was devoted primarily to a repetition of last year's message except for those recommendations which had been approved by the last session of the Congress. That he still had a great many recommendations to make bears testimony to the fact that the Congress failed to enact a good part of his program.

There were slight differences in emphasis which are worth noting. Of course, the President continued to call for repeal of the Taft-Hartley Act. But he did not dwell on the point. Either he has given up hope, or he does not really want it repealed for the reason already mentioned.

The President placed heavy emphasis on further anti-monopoly measures. He called for legislation to "close the loopholes in the Clayton Act which permit monopolistic mergers". It must be remembered that the present anti-monopoly laws penalize a conspiracy in restraint of trade, but if trade is restrained because competitors have merged, no illegal act has occurred. The President also promised to send Congress "a series of proposals to strengthen the anti-monopoly laws, to assist small business, and to encourage the growth of new enterprises". These new measures will be watched with great interest. There has been increasing concern around Washington because small business finds it very difficult to secure needed capital. Also many new enterprises never come into being because they cannot secure the necessary venture capital to get started. It is likely that the President has in mind some schemes for extending further the powers of the RFC to make loans to small business or the empowering of some other agencies to insure such loans.

Having accomplished a good part of his low-income housing program last session, the President has now turned to providing housing for middle-income families. He wants legislation authorizing a program to help cooperatives and other non-profit groups to build housing which these people can afford.

The President reiterated his support of the Marshall Plan, his "point four" program of technical and financial aid to underdeveloped nations, the Brannan farm plan, the civil rights program, a public health program, aid to education, and increased social security.

Of these, improved social security, particularly increased old age insurance benefits, has the best chance of congressional approval. This is because it will have a large amount of business support—even big business support—now that the liability of business under many pension plans will be reduced if the government program is increased.

Finally, the President's message sounds a much more moderate note when he deals with taxes. He wants changes which will "reduce present inequities, stimulate business activity, and yield a moderate amount of additional revenue." The details of this program will unfold as the session proceeds. But it would be no surprise if in the end the program amounts to no more than an increase in the corporate income tax, a measure which the President has been recommending for some time.

The State of Construction Activity

Figures for contruction activity in the entire year 1949 have just been released, and they tell a pretty story indeed. In 1949 more than $19,300,000,000 was invested in new construction. This is half a billion dollars more than in 1948. The table on page 78 shows the details.

From the table it may be seen that private construction did not rise. As a matter of fact, it declined by $500,000,000. This was more than compensated for by public construction which, in these complete annual figures, rose by $1,000,000,000.

It is significant to observe that private construction declined in practically every one of its subdivisions. The most serious decline occurred in non-residential industrial construction. Here the decline was $4,000,000. This amounted to a 10 percent drop below 1948. This decline in industrial construction reflects the fact that the post-war boom in industrial expansion is tapering off. The only area of private construction which showed an increase was public utility construction. Further analysis indicates that this was concentrated heavily in the electric light and power industry.

On the other hand, public construction increased by leaps and

(Continued on page 78)

Ingenious Washing Device Utilized At Oregon Aggregates Plant

By HARRY F. UTLEY

another ON THE SPOT report

MILL CITY, a small town on the North Santiam River in western Oregon, is currently bustling with activity preparatory to the construction, beginning early in 1950, of Detroit Dam. The dam, a U. S. Bureau of Reclamation project, will be erected a few miles east of the town.

The Jungwirth Sand & Gravel Company had been operating a small commercial sand-and-gravel plant at nearby Lyons, Ore., for six or seven years, but in the summer of 1949 it placed in operation a new 85-t.p.h. plant in Mill City. While the company will not supply aggregates for the dam proper, it has been busy since the opening of the new plant supplying material for a housing project and other preliminary structures erected by Consolidated Builders, Inc., general contractor for Detroit Dam.

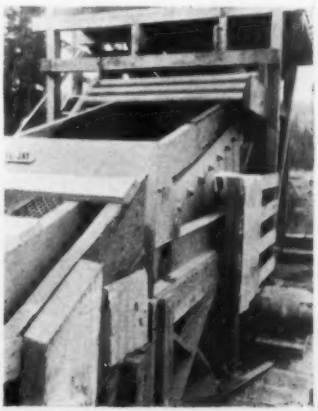
Clarence and Francis Jungwirth are the owners of the new plant, which is obtaining its material from a 22-acre deposit along the North Santiam River. Dump trucks, loaded by a Bay City ½-cu. yd. shovel, discharge their loads to a plant hopper, where a reciprocating feeder puts the pit-run on an inclined belt conveyor running up to an El-Jay double-deck screen in the plant. Here top-deck rejects pass to a crusher, while coarse materials in the pea-gravel range drops to a truck-loading bin. Screen throughs (concrete sand), along with the wash water, go to a company-built sand dewatering wheel. Another truck-loading bin stores the sand.

• A view of the Jungwirth Sand and Gravel Company's plant at Mill City, Ore. The conveyor in the foreground leads to the scalping screen; the sand-dewatering wheel is just visible at the right. The conveyor at the left carries the crusher product to the screen over the loading bin.

Instead of utilizing conventional spray nozzles for washing the material as it passes over the screen, the Jungwirths devised an interesting method which they claim does a much more thorough job of washing the material. This consists of three parallel sections of 4-in. steel pipe mounted at right angles to the screen at the head end. The pipes are perforated, a single row of holes for each, but each in a different relative position, so that

• The ½-cu. yd. pit shovel working in the deposit shortly after it had been opened.

• The washing screen, showing the arrangement of three parallel 4-in. perforated spray pipes at the head end.



• This impact crusher does both primary and secondary reduction in a single pass. It can take pieces up to 20 in. in size.

the streams strike the material with considerable force at three separate angles. Streams from the first pipe hit the oncoming material head-on; from the middle pipe the streams are directed downward; while the third pipe sprays the material going away. Were regular sprays used on the screen, in the Jungwirths' opinion, they would be forced to install a scrubber ahead of the screen to remove all the clay and silt, whereas the installation as they have made it produces a perfectly clean material.

Oversize scalped off the screen is chuted to a New Holland Type 2020 double-impeller impact breaker. This crusher is in open circuit, the product going by conveyor to another El-Jay screen which separates the crushed gravel and drops it into a compartment truck-loading bin below.

Manganese Agstone

(*From page* 75)

with the soluble manganese content, have been circulated. It would appear that soluble manganese for the carbonate agstone, and total manganese for oxide ore would be sound bases for pricing. Differentiation between manganese ore and manganese agstone will probably have to be made for freight rates.

Obviously an agstone producer would not want to pay ore royalty rates to land owners.

Opportunities for a New Industry

Progress in science has repeatedly opened up new uses for old materials, or has made valuable commodities out of raw materials for which there had previously been no demand. Manganese carbonate definitely has a place as a soil supplement. In soil areas of high manganese deficiency, or for long freight hauls, the richer ore may be desired; in others the leaner ore may be more economical.

In some cases it may be preferable to add the ore separately to the soil. In other cases the best way to add manganese agstone will be mixed along with dolomite (Ca, Mg, Mn added at one time) or limestone agstone.

Manganese carbonate can be added directly to commercial fertilizers to fortify them. At this writing, investigations are being made by fertilizer processors in the possible use of carbonate ore. The most progressive agstone producers will soon be furnishing blended agstone with trace elements to fit the needs of particular farming areas, and manganese carbonate appears to be one of the most logical, most natural, and most economical and practical sources. Manganese carbonate may be shipped to the regular limestone quarry and a small amount of manganese blended into ordinary limestone at the crusher to supply the desired trace element.

Low-grade and byproduct carbonate ore from manganese mines are promising aids in the economics of mining. Arkansas looks like a potential source of manganese carbonate agstone.

References

1. One of the best informed men and one of the best sources of information on the use of manganese is J. F. Wischhusen, Manganese Research and Development Foundation, 15031 Shore Acres Drive, Cleveland 10, O.

2. *Weathering of Manganiferous Minerals by Clay Colloids*, by B. B. Konnur, Master of Arts Thesis, Library, University of Missouri.

Washington News Letter

(*From page* 76)

bounds. Public residential construction doubled, reflecting in part the effect on congressional approval of more public housing. Public construction of educational facilities—schools—increased by 50 percent. Public construction of hospitals and institutions doubled. Conservation and development construction increased by a third.

The year 1950 will probably see further expansion in public construction. Substantial sums of money have already been appropriated. In addition, the best estimates now are that private construction will probably continue at least at the 1949 level. If these estimates are right, general prosperity in the construction industry is assured for at least a year.

New Construction Activity
(Billions of Dollars)

Type of construction	1948	1949	Change from 1948 to 1949
Total all types	18.8	19.3	+ .5
Total private	14.6	14.1	— .5
Residential	7.2	7.0	— .2
Non-residential	3.6	3.2	— .4
Industrial	1.4	1.0	— .4
Warehouses, office and loft bldg	.3	.3	— .0
Stores, restaurants and garages	.9	.7	— .2
Other	1.0	1.2	+ .2
Farm	.5	.5	.0
Public Utility	3.3	3.4	+ .1
Total public	4.2	5.2	+ 1.0
Residential	.1	.2	+ .1
Non-residential	1.1	1.7	+ .6
Educational	.6	.9	+ .3
Hospitals and institutional	.2	.4	+ .2
Other	.3	.4	+ .1
Military and naval	.1	.1	.0
Highway	1.6	1.7	+ .1
Conservation and development	.6	.8	+ .2
Other	.7	.7	.0

Micron-Sized Calcium Carbonate

"Definitely not a by-product proposition," pointed out officials of the Calcium Products Division, Georgia Marble Co.

another ON THE SPOT report

FOR the most part nonmetallic minerals are produced on a large scale and sold on a low unit cost basis. Such procedure is both practical and logical since the nonmetallic minerals comprise those products (crushed stone, sand and gravel, cement, lime, and many others) which by the very nature of their ultimate uses demand vast tonnages at low cost. Finely pulverized, unusually white and pure calcium carbonate produced by the Georgia Marble Company at Tate, Ga., presents a somewhat different picture in that production is comparatively small, only 2½ t.p.h., and the selling price is about $30 per ton for the micro-grain sizes. In common with the other nonmetallic minerals industries, however, this operation demands a large amount of heavy machinery, requiring a substantial capital investment.

By EDWARD BRUNENKANT

The calcium carbonate mills operated by the Calcium Products Division of the Georgia Marble Co. are definitely not a byproduct proposition. The parent company has been internationally famous for its Georgia Crystalline Marble, which has been widely known and used as a structural and monumental material. Vast and practically unlimited reserves of this white marble, estimated to be enough for 1800 years' production, has been proven by competent surveys. In the company's many quarries is found a wide range of colors including white, pink, grey and green; but to insure the very best color the Calcium Products Division is quarrying its requirements from a separate deposit of the best white variety.

Stone for the calcium carbonate plant feed is recovered by underground mining methods. Underground mining was chosen as the method of recovery over open pit excavation because it offered a convenient means of circumventing the handling of a deep and badly discolored layer of cap rock. Therefore better color is maintained.

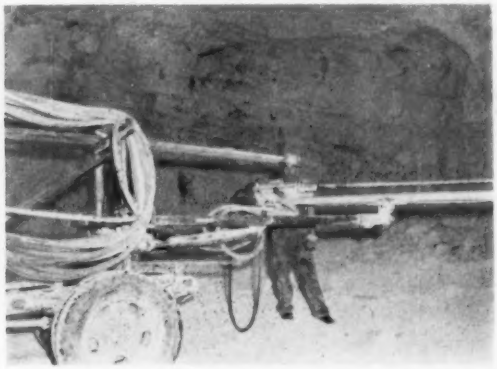
The mine was opened with two adits each large enough to permit easy movement of incoming and outgoing quarry trucks. In addition, the entrances provide adequate natural ventilation. Because of the low silica content of this rock (less than 0.38 percent) it is thought that there will never be any need for a forced draft system of ventilation.

A room-and-pillar method of mining is employed, taking out 70-ft.-square rooms, 18-ft. ceilings, and leaving 25-ft.-square pillars. Blast holes are sunk with a Sullivan drifter on a variable hydraulic drilling bar of the same make. The entire rig is mounted on the rear end of an old truck, permitting quick shifting of the unit to a new drilling position. The holes are loaded with a 60 percent gelatin dynamite and detonated with delayed action caps. About 1200 tons of well-fragmented stone are brought down with each shot. It is loaded into 2½-ton Chevrolet trucks with a 1-cu. yd. Bucyrus-Erie front end loader on an International TD-9 tractor, and an LS-51 Link-Belt ½-cu. yd. shovel powered by a "Caterpillar" diesel engine.

Primary reduction of the stone is handled in a Farrel-Bacon 24-by 36-in. jaw crusher adjusted to produce minus 3-in. material. The crusher discharge is passed over a vibrating grizzly where two separations are made: plus 1-in. minus 3-in. for the wet grinding circuit, and minus 1-in. for the dry grinding circuit. The circuits are operated independently of one another, the dry circuit producing an air-floated product in grain sizes 99.8 percent passing 325-mesh to 75 percent passing a 200-mesh sieve, and the wet system producing calcium carbonate in finenesses 100 percent under 15 microns in size. Both products have distinct economic applications and uses.

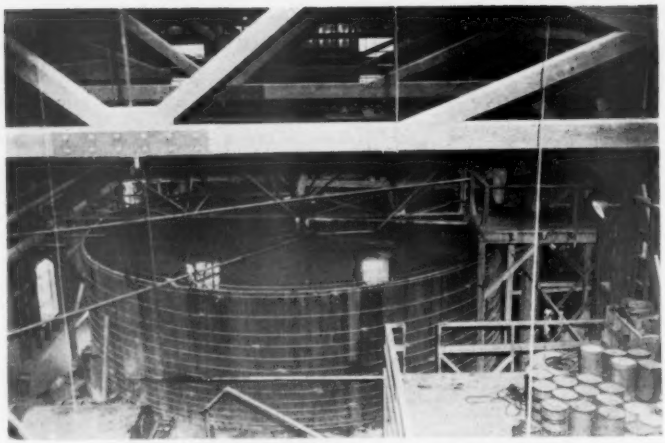
Essentially the dry grinding plant is a two-stage reduction circuit. Minus 1-in. stone, split off at the grizzly, is passed through a Day hammermill and reduced to minus ¼-in. Then it is chuted into one of two Raymond high-side roller mills, each equipped with a Raymond whizzer-type air classifier. By regulating the speed of the whizzers through Reeves speed reducers, it is possible to control the size of the

• Below, left: Plant feed stone for this calcium carbonate plant of the Georgia Marble Company, Tate, Ga., is recovered by underground mining methods. Here the stone is loaded into a truck with a tractor fitted with a front-end loader.



• Right: Shot holes are drilled with a drifter drill mounted on a hydro drill jib which controls hydraulically the positioning of the drill.

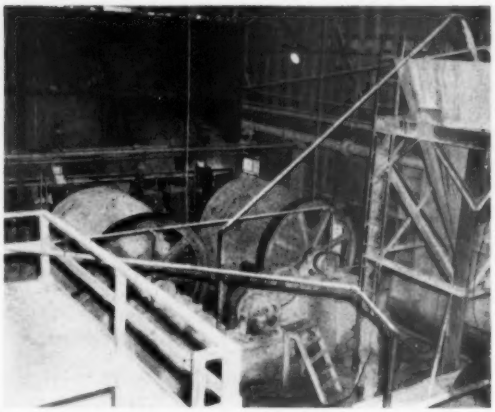
• Right: One of the two 35-ft.-diameter thickeners used in this plant.



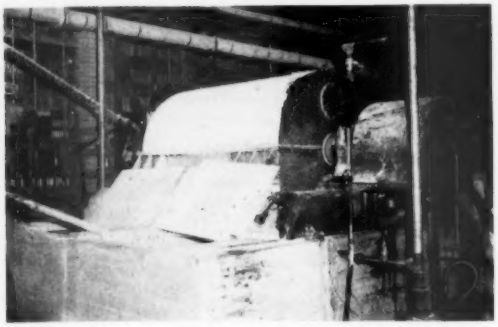
product—the slower the speed, the coarser the product and vice versa. The largest tonnages are produced in the 99.5 percent passing 325-mesh range, for the paint and rubber industries, and 75 percent passing 200-mesh for the feed mills. All products are packed in 50-lb. multiwall valve bags on a St. Regis 2-spout packer. Dust-laden air generated in the dry circuit is arrested in a Raymond stocking-type collector. Essentially this unit consists of 72 20-ft. by 6-in. stocking-like bags in which the fine dust is collected.

Stone feed for the wet grinding

(*Continued on page* 86)



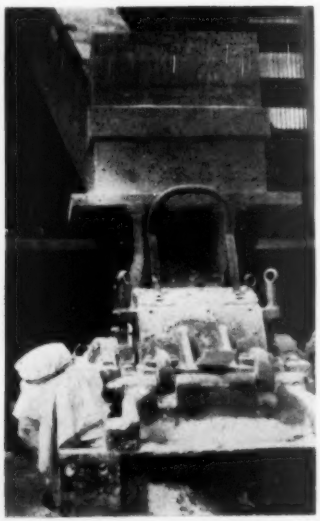
• A view showing two of a battery of five conical mills. Slurry is maintained at 50- to 55 percent solids.

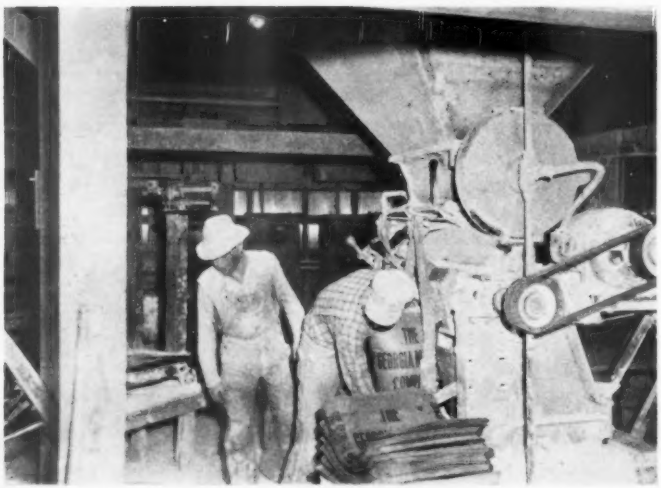


• The product from the conical mills is passed through this 40- by 60-in. centrifuge.

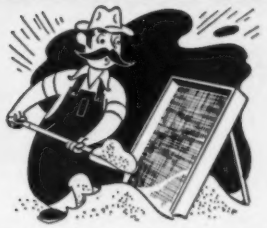
• Below, left: After drying, the material is passed through this high-speed micro-pulverizer in order to break up any agglomerates that might be formed in the drying process.

• Below: All of the company's products are packed in 50-lb. bags with this packer.





Screenings



by William M. Avery

WE understand that state ownership of the cement industry is one of the tentative planks in the Labor party's platform for the 1950 general election in Great Britain. As part of the industry's resistance campaign producers are shipping their product in bags marked "Don't mix nationalization with cement."

No doubt the Laborites figure that the cement issue would provide raw material for a strong concrete plank in the party platform, whereas the cement makers (presumably Tories) are not at all sure how their material will perform with a phony aggregate like nationalization. In any case, we think the British cement people ought to hire a few American slogan writers to help lift their campaign out of the pale, listless rut into which it seems to have slumped. We could easily send over several boatloads and never miss 'em.

Long Watch

APPARENTLY weary of short-term investigations which can be completed in a mere 20 or 30 years, the Bureau of Standards has launched an experiment that will be carried on for at least a century. Over 2,000 rocks from 47 states

and 16 foreign countries have been built into a masonry wall 13 ft. high, 88 ft. long, and two feet thick.

In a hundred years or so the Bureau's clock watchers — no, we mean *rock* watchers—expect to have lots of fascinatin' data about how various types of stone weather and discolor in the Washington, D. C., climate. The only serious objection we can see to a long-range investigation of this sort is that the Republicans just *might* get back into the driver's seat in the next century, and then what happens to all that arduous work? Our Democratic friends say this is a contingency too remote for serious consideration.

Eager Beaver

HAVE you heard about the monument dealer in Logansport, Ind., who carved his Christmas greetings on small limestone slabs

which he mailed to his "prospects?" It seems like a pretty grim note to strike at Christmas time, but then everyone else uses the holiday season to peddle his wares. Our only serious objection to it arises from a feeling that a monument dealer, of all people, should cultivate a spirit of patience. No doubt the mailmen in Logansport could advance even weightier objections.

Natural Error

NOT long ago a Washington engineer dug up the remains of some old furnaces near Chillicothe, O., and announced after considerable study that he believed them to be pre-Columbian iron furnaces. To authenticate the archaeological importance of the find he invited a representative of the Smithsonian Institute to visit the site. After careful reflection the Smithsonian gentlemen declared that the ruins were 19th century lime kilns, and that iron bars found among the remains were actually grate bars used in the kilns.

Our sympathies in this case are all with the engineer who made the original discovery, and we think his error was entirely understandable. As a matter of fact, we saw several shaft kilns in operation only last summer that we would have sworn were in production when Columbus landed.

Concretely Speaking

ONE of the press clipping bureaus recently sent us an item from the state of Washington which bears the heading "Concrete to Expand." We struggled through the item three or four times before it dawned on us that it referred to a city named Concrete, and that the expansion had to do with an extension of the corporate limits.

Right away our agile brain was filled with all sorts of wonderful headline possibilities involving the same community and its expansion problems, such as: "Concrete Woman Gives Birth to Triplets!" Since nobody else around these parts seems to find anything inherently hilarious in this form of mental gymnastics, we've decided not to pass out any more samples.

Colossal Gesture

NOW that the Blarney Stone issue has cooled off a bit, we are awaiting repercussions from another operation in the overseas movement of famous stones. The Italian government is presenting to the City of Los Angeles a three-ton block of Travertine marble from Rome's historic Coliseum. We are advised that the gift will be addressed to the Los Angeles Memorial Coliseum Commission, "in a gesture from one coliseum to another."

Well, we're just beginning to get adjusted to the notion that cigarettes can make statements, so maybe in time we can take gesticulating coliseums in our stride. It will take some doing, though. Wonder what sort of reciprocal gesture the Los Angeles coliseum will make?

Report on Current Labor Developments

By S. HERBERT UNTERBERGER

Director of Research
Labor Relations Information Bureau
Washington, D. C.

ON January 25, 1950, the new Wage and Hour Law became effective. Since that date, employers have been required to observe the higher 75-cents-per-hour minimum wage and the other requirements of that law. (For a discussion of the principal changes made by that law and their effect on business operations, see the *Report* in the December and January issues).

On the same date, other important changes in wage and hour rules also became effective, as a result of new regulations issued by the Department of Labor. Employers are required to observe not only the new law but also the new regulations.

In some instances, these new regulations were required because of the changes in the law; others were introduced on the same date only because that appeared to be convenient. Since employers were required to reconsider their practices in any event, it was thought that making a few more changes at the same time would not add much to the problem.

MINIMUM WAGES ON GOVERNMENT CONTRACTS RAISED

A different law, the Walsh-Healey Public Contracts Act, empowers the Secretary of Labor to establish minimum wages for work done on federal government contracts. Since this law was passed in 1936, minimum wages have been established for a great many industries. Many of these minimums called for rates lower than 75 cents per hour.

Since the wage and hour minimum increased to 75 cents an hour, these lower requirements on government contracts were regarded as inconsistent. Accordingly, as of January 25, 1950, the Secretary of Labor has amended all the Walsh-Healey wage determinations to provide a rate of at least 75 cents an hour.

Most government contractors are covered by the Wage and Hour Law and would have to raise their wages to 75 cents an hour anyhow. But there are some who are not covered, either because they are not engaged in interstate commerce or because they are exempt under one of the specific exemptions of that law. As an example, certain cement firms may not be covered by the Wage and Hour Law. But since they are covered by a Walsh-Healey Act minimum wage determination, they will nevertheless be required to observe the higher minimum wage.

NEW REGULATIONS FOR WHITE COLLAR EMPLOYEES

The new Wage and Hour Law made no change in the provisions covering so-called white collar employees, that is, executive, administrative and professional employees, employees engaged in local retailing, and outside salesmen. According to the law, such employees have always been and continue to be exempt.

Nevertheless, the rules about these white collar employees changed significantly on January 25, 1950. This is because the law gives the wage and hour administrator the power to issue regulations defining the employees included in each of the categories. And the administrator has issued such new regulations, which also took effect on January 25, 1950.

To make sure that they are complying with the law—while taking full advantage of the exemptions provided under it—employers will have to review the jobs of their white collar workers to see whether they are or are not exempt. Many white collar employees who were exempt prior to January 25, 1950, may no longer be exempt. The employer will thereafter have to observe all the requirements of the Wage and Hour Law. The most burdensome of these will probably be the requirement for overtime pay. In some cases the employer will want to make some changes in the job or the rate of pay, so that the employee will continue to qualify under the exemption. Here is a summary of the new definitions for each category of exempt white collar employee:

Executive Employees Every employee qualifying for exemption from the Wage and Hour Law on the basis of being "employed in a *bona fide* executive capacity" must meet the following two tests:

(1) His primary duty must consist of the management of the enterprise in which he is employed or of a customarily recognized department or subdivision thereof; and

(2) He must customarily and regularly direct the work of two or more other employees therein.

If the employee receives a salary of less than $100 per week, he must also meet the following additional tests:

(3) He must have the authority to hire or fire other employees or be in a position where particular weight is given to his suggestions and recommendations as to the hiring or firing and as to the advancement and promotion or any other change of status of other employees; *and*

(4) He must customarily and regularly exercise discretionary powers; *and*

(5) He must not devote more than 20 percent of his hours worked in the work-week to activities which are not directly and closely related to the performance of the work described above except in the case of an employee who is in sole charge of an independent establishment or a physically separated branch establishment, or who owns at least a 20 percent interest in the enterprise in which he is employed; *and*

(6) He must receive a salary of at least $55 per week.

Administrative Employees Every employee qualifying for exemption from the Wage and Hour Law on the basis of being "employed in a *bona fide* administrative capacity" must meet the following two tests:

(1) His primary duty must consist of the performance of office or nonmanual field work directly related to management policies or general business operations of his employer or his employer's customers; *and*

(2) He must customarily and regularly exercise discretion and independent judgment.

If the employee receives a salary of less than $100 per week he must also meet the following additional tests:

(3) He must regularly and directly assist a proprietor, or an employee employed in a *bona fide* executive or administrative capacity *or* he must perform under only general supervision specialized or technical work requiring special training, experience or knowledge, *or* he must execute under only general supervision special assignments and tasks *and*

(4) He must not devote more than 20 percent of his hours worked

(*Continued on page 86*)

the plant operator

by WOLF G. BAUER
Consulting Engineer

PUTTING AIR TO WORK IN THE PLANT

PART I—PRINCIPLES OF PNEUMATIC CONVEYING

another P and Q exclusive

PLANT operators have no doubt asked themselves at one time or another whether a pneumatic transport system was applicable and of merit in conveying various raw and finished product materials into, out of, or about the plant. A number of appealing points to this conveying medium warrant anyone's consideration. Yet there are also equally unfavorable drawbacks and hidden jokers in such systems. The subject matter will be discussed here at first from a more basic viewpoint; and in a succeeding article the various systems and their component parts and limitations may be treated from a practical standpoint, so that the operator may be in a better position to give intelligent thought to them and make decisions on their application to his own conditions and materials.

In our nonmetallic minerals processing plants we have numerous occasions to put moving air to work around the plant. It may be a job of cleaning up a dusty plant and providing for the removal of various rejects and spillages at odd points in an automatic centralized collection system. The operator may wish to pulverize fuels and convey them to burners or into bins. There is the transfer of coarse or fine materials from one silo to another; loading or unloading cars of materials from 1-in. size to dust; emptying silos with compressed air; aerating pulverized material for the purpose of producing a fluid that may be made to flow by reason of gravitational head, as in the Air Slide, or by mechanically produced head, as in the Fuller-Kinyon pump, or by air pressure differential, as in the various blow-tank systems under high pressure; drying and conveying materials through mills and grinding systems; drying wet sand-size minerals by fluidization; and automatic reclaiming of piled materials from submerged and remotely controlled suction inlet points or stations.

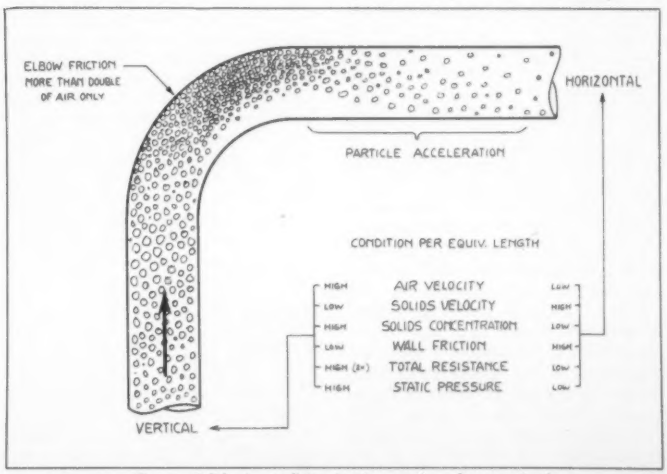


Fig. 1. Solids-air condition in pipe sections (coarse sizes).

FUNDAMENTAL CONSIDERATIONS

Before we discuss the *pros* and *cons* of the various systems and techniques in use, let us follow past procedure and first of all study a few of the dynamic forces at play in the pneumatic transport systems, and see clearly how they may affect application and economics.

In all the various systems employed in conveying solid particles by or with air, certain relationships of particle size, shape, density, airstream velocity, solids-air mixture ratios, carrying capacity, friction losses, pressure head and power demands influence the suitability as well as the design of the system. At the present time, since relationships are influenced by so many variables, no overall formulae have been evolved to solve the many problems the designer must cope with. Practical experience and empirical rules still guide most so-called "engineering" work in this field. Little true fundamental research has been done or published, although an ever increasing fund of knowledge through wider fields of application help us to understand and allow for these elusive variables.

Velocity For obvious reasons, denser, rounder, and larger particles fall or are supported by air streams of higher velocity than those which have less mass per

volume, but offer more air resistance. The velocity of falling particles of various sizes, and the laws which in general govern them in degree, at least, have been shown in graph form, and the equations of these curves were given in an earlier article by the writer in the May, 1947, issue of PIT & QUARRY on page 93.

In all air transport problems, gas stream speeds are within the turbulent range of Newton's or the square-root law, i.e., $V = K\frac{\sqrt{gDP_s}}{P}$, where V=differential fluid-solid velocity; D=particle diameter; P_s= true solid density; g=gravity acceleration; and P=gas density. If an upward rising air stream just suspends a particle, the velocity may be called the suspending velocity. Various constants are then applied from practical experience to take into account the particle shape. Naturally, the air-conveying velocity must exceed the suspending velocity for the largest particle in the stream.

For practical applications, the bulk weight of the material may be substituted for density in the general formula. The Buffalo Forge Company has evolved such a formula which takes into account the more rapid fall of bulk material weight in relation to a decrease in density. Their recommended air velocity for conveying in low pressure-low density systems is thus given as follows:

$$V = K_1\sqrt[3]{W}\sqrt{D} + K_2\sqrt{W},$$

where V=velocity of air in feet per minute; W=bulk weight of material in pounds per cubic foot; D=diameter of equivalent cross-section of particle in inches; K_1 and K_2 =1030 and 582 respectively.

Friction Pressure losses due to material weight and friction are difficult to peg down in set formulae. Here again, much depends on the air-borne bulk density or air-material ratio, the type or design of the pipe or duct system, radii of bends, conveying velocity, as well as relation of vertical or inclined sections to horizontal lengths. In general, for entrainment-conveying systems, horizontal sections are figured somewhat higher than for air only (see figure 1), while elbow friction should be doubled for long radius bends. A dimensionless relationship may be given which expresses the gas-solid friction in terms of the gas-solid weights. Thus the ratio

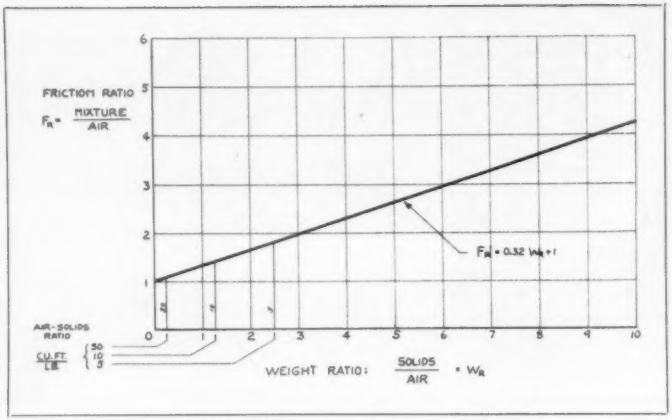


Fig. 2. Friction increase with solids concentration.

$$\frac{\text{Friction of mixture}}{\text{Friction of air}} = F_r$$

and $\frac{\text{weight of solids}}{\text{weight of air}} = W_r$,

then $F_r = 0.32W_r + 1$.

This ratio again holds true only for a certain range of sizes and types of material, and is given here as indicative of how friction changes with air loading when air-stream velocity is high enough to be fully entraining. Figure 2 shows how the friction ratio varies with the stream loading in low pressure type systems.

Air-Solids Ratios The amount of air that is used to carry a quantity of solid material, i.e., the solid concentration of the loaded air stream, can be used to classify air transport systems. The ratios of air to solids are best expressed in commonly used units of cubic feet of air per pound of solids.

The usual exhaust systems for dust removal have the highest air-solids ratios (anywhere from 100 to 500 c. f./lb.). Next in concentration would probably be the dry grinding mill systems in which an air current sweeps out the fines for cyclonic or sifting collection (range of 50 to 100 c. f./lb.). This includes also coal grinding mills with direct-connected fuel nozzles. In the field of conveying all types and sizes of materials by low pressure air, the mixture or loading becomes still more concentrated, and may range 20 to 75 c. f./lb., although this may drop to 5 c. f./lb. In pulverized fuel firing where the powdered fuel is emulsified with air at ratios independent of grinding and classifying requirements, the air loading is still higher; it approaches that of aerated powder pumping systems, and ranges from 3 to 15 c. f./lb. The densest air-solids mixtures are those employed with fine powdery materials which are aerated and pumped through pipes at relatively low velocities. Here ratios are generally below ½ c. f./lb., since the air is not used as a conveying medium but rather as an internal fluidizer and air-film lubricant.

CONVEYING COARSE PARTICLES

Coarse particles in the range of sand-to-gravel size may be transported by means of low-pressure pneumatic systems. However, the maximum size of particles to be conveyed is dictated by material specific gravity, since the necessary conveying velocities and pressures for large and dense particles quickly become excessive. Dense and heavy particles may readily be conveyed, but ores, minerals, and chemicals of pea to gravel size should have a specific gravity of not more than 1 to 1.5. As an example, conveying crushed pebble-size limestone would not be economical, whereas conveying crushed pebble lime of equal diameter particles is entirely feasible in many instances. On the other hand, pulverized limestone can readily be handled by air. Thus, in discussing conditions for conveying particles of maximum diameter, conveying velocites, air-solids ratio, and total resistance of the system are all-important factors.

Vertical vs. Horizontal Sections Air-stream-transported material in vertical sections of a duct system or a pipeline presents somewhat different conditions from those in horizontal portions of the system. A particle being lifted by the air stream obtains a certain upward velocity

which is less than the air velocity. Since the particle is in equilibrium, the forces balancing each other are the gravitational force acting downward, and the air impact and friction forces, as well as the differential space displacement or buoyant forces acting upward. After the particle has rounded and passed through an elbow and is carried along horizontally, the effect of the gravitational force diminishes by the upward component of the bottom wall friction force, thus unbalancing the equilibrium. When this happens, the air forces overbalance and impart acceleration to the particle up to a point in the higher velocity where the increased wall friction force exactly counterbalances the air pushing force. We can now indicate the following conditions existing in a pipe or duct system in which conveying direction changes from vertical to horizontal:

1. Concentration — As material enters the vertical section, air slippage increases due to increased gravity pull opposed to stream direction, thus allowing others behind to catch up and resulting in denser packing. During the change to horizontal, particle acceleration spreads the massed particles out again to a higher air-solids ratio.

2. Air velocity—Because of this denser particle massing in the vertical section, lineal air speed is increased through the greater stream passage constriction. Here we may witness a self-regulating phenomenon where, within certain limits, an insufficiently high stream velocity curbs settling until the restriction to air passage has raised the velocity to that of high energy fluidization; this again moves the material upward and forward, provided, of course, that the necessary pressure increase is met. Not only does this apply to vertical sections, but also to horizontal stretches, but with somewhat different mechanics. In the latter case, deposits and accumulation of drifted material which has settled out restricts the passage until suitable carrying velocity has established itself again.

3. Resistance head—In vertical sections wall friction is less than in horizontal sections, not only because the gravity force component exerts itself in the horizontal duct, but also because particle velocity is greater. However, in computing the total resistance in the system, the static head against the air blower or pump is more than just wall resistance. Generally, at least double the normal load-free air resistance is applied to vertical pipe sections as against horizontal pipe sections of equal length. This factor takes care of the extra particle air friction, as well as the kinetic energy expended in accelerating from vertical to horizontal solids velocities. Resistance in the horizontal pipe increases with the material-to-air ratio as well as the conveying velocity up to about 7 to 8000 f. p. m. in the usual concentrations.

CONVEYING FINE PARTICLES

Relationships between air and solids are similar here to those previously discussed for coarser particle conveyance. However, since there are several distinct techniques of conveying, conditions under each system will be touched upon separately.

Air Entrainment System In this system air-to-material ratio is generally high and friction remains fairly low at ratios above 60 c. f./lb. In vertical sections the particle concentration and slip is not very much greater than in horizontal pipes. If the air lifting velocity in vertical portions becomes too low, however, successive medium and dense-phase fluidization takes place, at which point friction in relation to static head becomes relatively small.

Fine-particle entrainment systems are characterized by low fan or pump pressure, i.e., below 5lbs./sq. in.; by high air velocities, (3 to 7000 f.p m.) and by air-to-material ratios between the limits of 20 to 80 c. f./lb, which are higher than those used in conveying coarser material.

Aeration Pressure-Head System In the aeration of a mass of fine particles an entirely new principle is operative in allowing solid particles to be transported by air movement, for here particles are not introduced into a moving airstream to be swept along, but are made "fluid" by separation with air under pressure. This process is not the same as so-called "fluidization," as discussed by the writer in earlier articles. In fluidization, an upward rising gas of a certain velocity and volume range is required to produce particle-lifting velocities within the bed, and put the particles into a teeter condition. In aeration, where particle size is generally considerably less, a condition is required in which particles are fluffed up and separated by adsorbed air films, and then held in this expanded and dispersed state by the turbulency of the conveying movement as well as possible electro-static repellency. In this condition, no further air is needed to produce flow, such movement being accomplished merely by creating a differential head between the ends of the conveying passage. This head may be produced by gravity, air compression, mechanical screw motion, or a combination. The Fuller-Kinyon pumps, as well as the various blow-tank arrangements, employ this principle.

The solids pump is continuous, and by a combination of high-speed screw action and aeration by compressed air through jets, pulverized material is pumped in a dense-phase fluid condition through pipes. Velocities here are somewhat lower than in entrainment systems, although they may be made as high under certain conditions. Pressure for the aerating air varies between 10 to 40 p.s.i. Air-solids ratios are low, and generally can be held below ½ c. f./lb. Thus pipes are small and capacity is high. Conveying distances above 3000 ft. are reached to heights of several hundred feet.

The high-pressure blow-tank system accomplishes transport through the action of alternate pressure vessels into which solids and air under 60 to 100 p.s.i. pressure is introduced and allowed to escape into the pipe system. As one vessel is being filled, the other empties, thus producing continuous conveying. The solids concentration is somewhat less than in the previously mentioned solids pump. Because of the higher pressure employed, material can be conveyed to greater heights, and over distances above one mile.

Fluidization Transport About seven years ago the writer first investigated and built channels with porous bottoms upon which fine material was made to flow on the horizontal grid by virtue of a differential hydrostatic or fluid head between the inlet and outlet of the channel-like trough. A number of years later a series of articles was presented in the pages of PIT & QUARRY to familiarize the reader with this phenomenon. It will therefore not be necessary here to review the various relationships, especially as in transport by open-channel fluid-bed flow, the material is of smaller particle size, aeration turbulency being less, forward speed being greater, and bed depth being lower, thus necessitating lower air velocities and pressures than in the applications to heat-exchange problems.

Lateral Flow The basic difference between usual dense-phase pneumatic pumping or pressure conveying in pipes and the open-channel flow of fluidized material is in the fact that in the former system the fine, fluffed, and aerated material is maintained in that condition throughout the length of the pipe or duct by the extreme turbulency due to high conveying speed, which does not allow the air-film-lubricated particles to settle out. In the open-channel or so-called Air Slide technique, the fluidized condition of the material mass is maintained by air permeation and percolation through the fine material from bottom to top along the whole length of conveyor duct, in this way providing not only mild teeter and agitating velocity, but also air film cushion and lubrication in the dense-phase fluidized system.

It is apparent that as the size of the particles to be transported by fluidization increases to and above sand size, and surface factor is thereby reduced materially, the amount and action of the adherent surface air films, as well as the probable electro-static repellent forces, become less and less pronounced, and an increasing amount of particle lifting and agitating air volume is required. This also accounts for a corresponding increase in the required flow slope for the coarser fluidized material over fine powders.

Vertical Flow In fluidizing material in such a manner as to cause upward flow instead of downward, a fluid head must be created which will produce the upward translation of the fluidized mass. This head may be produced in several ways.

The writer has produced heads by supporting a column of static material as in a bin upon or against the side of a small area of fluidized bed at its lowest point, thereby imparting the pressure in the form of non-fluidized material weight upon the fluidized bed, causing flow. A somewhat similar technique has been worked out in the Fuller Air Lift. Here the bottom of a silo containing fine powder is fluidized, and the weight of bin material produces sufficient pressure to force the fluid material up a lift pipe into which additional air is added to produce an aerated solids column of lower density, which is therefore overbalanced by the denser column on the outside, producing upward flow.

The various pneumatic systems described will be illustrated in a later issue of PIT & QUARRY. There are many reasons why the plant operator can apply these techniques to distinct advantage in his conveying problems. A clearer picture of these systems should help him decide the requirements and the limits of each in the light of modern practice.

Micron-Sized Calcium Carbonate

(*From page* 80)

circuit is pulled from a 200-ton storage bin and fed into five Hardinge conical mills. Water is introduced at the mills in quantities calculated to maintain the slurry at 50 to 55 percent solids. The mill discharge is pumped to a feed cone charging a 40- by 60-in. Bird centrifuge. The product from the centrifuge is pumped and discharged through a 300-mesh silk screen into two 35-ft. diameter Dorr thickeners, while the rejects are equally divided and recycled back to the conical mills. From the thickener the material, averaging 50 percent solids, is pumped into a feed tank, agitated enough to prevent settling, and distributed to four 4- by 10-ft. Arum dryers manufactured by the McCarter Iron Works. Here the moisture content is reduced to less than 0.4 percent. The dried material is then passed through a high-speed Pulverizing Machinery Co. Mikro-Pulverizer in order to break up any agglomerate which might be formed in the drying process before packing in 50-lb. multiwall paper bags.

The extremely fine material (100 percent less than 15 microns, 98.5 percent less than 10 microns) from the wet grinding circuit finds a ready market in the paint, rubber, and floor covering industries and a number of others. Continued research, conducted by Dr. Milton Gallegher of the University of Chattanooga, is certain to uncover other industrial applications for Georgia Marble Company's calcium carbonate. A typical chemical analysis follows:

$CaCO_3$	—98.00	percent
$MgCO_3$	— 1.01	"
Al_2O_3	— 0.02	"
Fe_2O_3	— 0.08	"
SiO_2	— 0.38	"
H_2O	— 0.40	"

In addition to a high $CaCO_3$ content, this product has an excellent white color value at a brightness of plus 96 percent on the Hunter Reflectometer.

John W. Dent, vice-president of Georgia Marble Co., heads up the Calcium Products Division and W. B. Tate Jr. is sales manager. We appreciate the time and help contributed by these men in supplying the information needed for this report.

Labor Developments

(*From page* 82)

in the work-week to activities which are not directly and closely related to the performance of the work described above; *and* he must receive a salary of at least $75 per week.

Professional Employees Every employee qualifying for exemption from the Wage and Hour Law on the basis of being "employed in a *bona fide* professional capacity" must meet either of the following tests:

(1) His primary duty must consist of the performance of work requiring knowledge of an advanced type in a field of science or learning, which includes work requiring the customary exercise of discretion and judgment *or*

(2) His primary duty must consist of the performance of work requiring invention, imagination or talent in a recognized field of artistic endeavor.

If the employee receives a salary of less than $100 per week he must also meet the following additional tests:

(3) His work must be predominantly intellectual and varied in character (as opposed to routine mental, manual, mechanical, or physical work) and must be of such a character that the output produced or the result accomplished cannot be standardized in relation to a given period of time; *and*

(4) He must not devote more than 20 percent of his hours worked in the work-week to activities which are not an essential part of and necessarily incident to the work described above; *and*

(5) He must receive a salary of at least $75 per week.

Local Retailing Every employee qualifying for exemption from the Wage and Hour Law on the basis of "being employed in a *bona fide* local retailing capacity" must meet the following tests:

(1) He must be customarily and regularly be engaged in making retail sales of goods or services of which more than 50 percent of the

dollar volume are made within the state where his place of employment is located *or* he must perform work immediately incidental thereto, such as the wrapping or delivery of packages; *and*

(2) His hours of work of the nature other than that described above must not exceed 20 percent of the hours in the work-week by non-exempt employees of the employer.

Outside Salesmen Every employee qualifying for exemption from the Wage and Hour Law on the basis of being "employed in the capacity of outside salesmen" must meet the following tests:

(1) He must be customarily and regularly engaged away from his employer's place or places of business and must be engaged in making sales *or* in obtaining orders or contracts for service or for the use of facilities for which payment will be made by the client or customer; *and*

(2) His hours of work of a nature other than that described above must not exceed 20 percent of the hours worked in the workweek by nonexempt employees of the employer. Work performed incidental to and in conjunction with the employee's own outside sales or solicitations, including incidental deliveries and collections, shall not be regarded as nonexempt work.

personal mention

John V. Pooler

JOHN V. POOLER, superintendent of Kaiser Gypsum's Long Beach plant, has been promoted to manager of operations of all the company's plants and quarries. These include the facilities at Long Beach and Redwood City, Calif., and San Marcos Island, Lower Calif. In addition, he will supervise shipping and construction activities of the organization from his office in the Kaiser Building at Oakland, Calif.

JOHN O. LEWIS, formerly superintendent of the Redwood City plant, will assume the duty of supervising production of the company's Long Beach plant, where the bulk of Kaiser Gypsum's products are manufactured.

ERNIE SHAPER was named superintendent of the recently acquired Redwood City plant.

Mr. Pooler has a background of 15 years' experience in the gypsum industry, starting in as a research laboratory helper.

He was board plant superintendent for Kaiser Gypsum before assuming his position as plant superintendent. He received his education in the mechanical engineering field at Armour Institute of Technology, Chicago, and the University of Illinois.

Mr. Lewis, who has been with the Kaiser organization since 1947, has spent 23 years in the gypsum industry. He was employed for five years with the Celotex Corporation in Texas, and prior to that, he served 18 years with the Cer-Tainteed Products Corporation of Texas.

Mr. Shaper has been with various Kaiser-directed organizations since 1938, with the exception of a stint in the field artillery during World War II. He was employed as an engineer at Grand Coulee Dam; did engineering work for Pacific contracts just prior to the war; and worked at the Kaiser Shipyard No. 2 in Richmond. He joined Kaiser Gypsum in 1946, immediately after its acquisition by the Kaiser interests, and figured prominently in the construction of the plant. Until now, he was plant engineer at Long Beach. A graduate of the University of Missouri in engineering, Mr. Shaper is a member of the American Society of Civil Engineers.

North American Cement Corporation officials recently announced two new appointments: PERRY W. ANDREAS was elected vice-president in charge of operations, and FRANK B. CUMMINGS was elected vice-president and controller of the concern.

F. B. Cummings

P. W. Andreas

Mr. Andreas was previously affiliated with the Northwest Linseed Company, Minneapolis, Minn., as assistant superintendent. He served with the United States Marines during World War II.

Mr. Cummings was chief accountant with the Acme Cement Corporation when it was acquired by North American in 1926. He joined the cement firm as district accountant and subsequently became assistant controller. He was appointed controller in March, 1929, and elected vice-president and controller in December, 1949.

ROYAL E. FOWLE, for 20 years with the Granite Rock Company of Watsonville, Calif., was appointed city engineer of Watsonville, effective January 1, 1950. He is also superintendent of streets and sewers and manager of the water department.

In his many years with Granite Rock, Mr. Fowle held various positions, from concrete technologist and safety director, engineer and production manager up to vice-president and manager. He left this organization in April, 1948, to become consulting engineer for Pacific Coast Aggregates, and in April, 1949, returned to Watsonville as assistant city engineer.

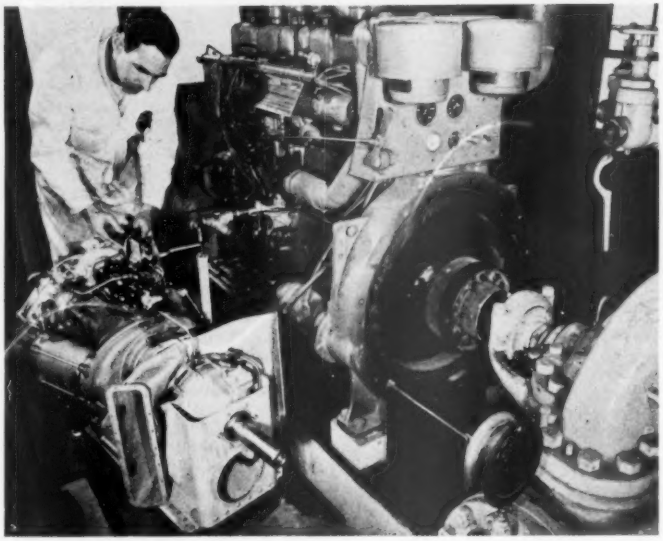
Mr. Fowle received his engineering education at Ohio State University and the California Institute of Technology and served in the United States Marine Corps, A.E.F., during World War I. He is a member of the American Society of Civil Engineers, the American Institute of Mining Engineers, the American Concrete Institute, the American Society for Testing Materials, the Society of American Military Engineers, and other similar groups. Mr. Fowle has long been active in affairs of the National Crushed Stone Association and the Rock, Sand and Gravel Producers Association of Northern California. He has written numerous articles which have been published in various fields, including some for PIT AND QUARRY.

LOUIS R. MYERS has been elected president of the Batesville White Lime Company at Batesville, Ark. CHARLES E. BAXTER JR. was named vice-president and general manager, by the board of directors, and JOHN COLLINS was named vice-president.

JOHN A. BITTERMAN of Lexington, Ky., who has been affiliated for 27 years with the Kentucky Highway Department, has been named director of the department's newly created Division of Materials and Testing. The laboratory, formerly a part of the Division of Construction, began functioning separately on January 1.

ROY B. JOHNS has been elected a vice-president of the Freeport Sulphur Company of New York. Mr. Johns joined Freeport Sulphur in 1915 and has been assistant vice-president and sales manager since 1930.

new machinery and supplies



● Jet Power

Two gas turbines are now in the advanced stage of development in the shops of the Boeing Airplane Co., Seattle, Wash. These two units are the Model 502 and the Model 500.

The "500" is a 111-lb. turbojet whose 180 lbs. of thrust make it a very efficient jet power plant. The gas-turbine "502" is nothing more nor less than the "500" with gear box, shaft and turbine wheel added. Thus the source of power is the same in each engine, but the methods of final propulsion are entirely different. The "500" produces jet power, measured in pounds of thrust; the "502" puts out shaft power, measured in conventional horsepower. The continuous output rating of the "502" at present is 160 hp., with a 200-hp. emergency rating.

Boeing engineers' enthusiasm for the turbine is based on the efficiency already demonstrated and on the obvious advantages which it has over any piston engine, advantages that for many applications outweigh the principal disadvantage of relatively high fuel consumption. In general, the "502" is far ahead of the conventional reciprocating engine in these respects: simplicity of design, light weight, small volume, and torque characteristics. For example, the field of industrial standby equipment is termed a "natural" for the gas turbine. The "502" has the necessary horsepower, wrapped up in a small package that can be conveniently tucked way in a corner for operation of standby pumps, generators and compressors.

Because of its portability, the Boeing turbine is said to fill a need of long standing in such fields as mining, logging and exploration, where inaccessibility often makes it difficult to employ unwieldy piston-type power sources. It can readily be disassembled and assembled, and it can be transported easily by light airplane. It can be easily moved into position by jeep, or even carried by hand.

Earlier and more definite possibilities appear in the field of truck transportation. Here the turbine may fairly soon be in a position to compete with the conventional diesel power plant. Another potential field is in industrial application. Probably its greatest single advantage in this field is simplicity.

Basically, the Boeing turbine comprises two major sections: the gas producer and the power-output section. The gas producer consists principally of a single-stage centrifugal compressor, two can-type burners and an axial-flow turbine wheel. This, the "502's" primary stage, is a pure jet engine, producing hot gases.

It is in the second section, the engine's "hind quarters", that the jet's thrust is transformed into shaft power. The unique feature of the Boeing turbine is the fact there is no mechanical connection between this second, or power output, stage and the first, or power-producing, section.

The gases travel from the first-stage turbine wheel (36,000 r.p.m.) through a nozzle box, and are expanded through the second-stage wheel, which turns at 22,500 r.p.m. and drives through a 9:1 reduction gear, stepping the r.p.m. down to 2500 and producing a maximum continuous output-shaft rating of 160 hp.

The absence of a mechanical link between the two stages permits the gas-producer speed to be controlled independently of the output-shaft speed, resulting in an engine with an infinitely variable transmission. This means simply that an extremely high torque can be developed on the output shaft by stalling the shaft while running the first stage at its rated speed.

● Fortified Bucket

As turned out at the plant of Baer Steel Products, Inc., Renton, Washington, the normally vulnerable dragline bucket hitch-plate assembly has been strengthened in the Baer bucket by the use of Fibraloy, called "the toughest steel known," and a new tongue-and-socket design.

Bucket rope sockets are made with a true circle design between socket and wedge. This maintains the rope at its full diameter at this point and greatly extends its life.

Co-owner-manager Joe Baer designed the new arch, lip and hitch-plate assembly for his new 8-cu. yd. dragline bucket. Baer bucket cutting fronts and replaceable teeth are cast of Fibraloy, which was developed by Dr. Alexander Finlayson, Pacific Car & Foundry's chief metallurgist for the front casting, including the hollow-cast arch.

B.F.Goodrich

At Marquette Cement Mfg. Co. quarry: Mack tractor with double Easton trailers being loaded. Total weight of vehicles is 190,000 lbs. The problems of heavy loads and sharp rocks require the best in tires!

All-Nylon Tires: Best for hard labor on the rock-pile!

TIRES take a beating in quarry service; carrying heavy loads over the jagged rock underfoot and with the continual hazard of falling rocks—murderous, tearing impact.

With the new All-Nylon tire for rock and quarry work, B. F. Goodrich is first again with a money-saving development in tires. Nylon is extra strong and elastic. Size for size, nylon cord is twice as strong as the cord generally used in tires. Since the new BFG nylon tires have the same number of plies as other tires, you can see that cord body strength is greatly increased. These tires have over twice the bruise resistance and many times the flex life of other cord tires.

In all tests and in actual use up to date, not a single BFG All-Nylon tire has blown out, not one flex break has occurred. Nylon tires will provide big savings for strip-mining, quarry and other operations where heavy loads and rough terrain have made tire costs high.

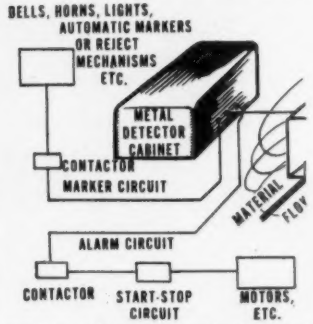
The new all-nylon construction is typical of the continuous improvements being made in truck tires by B. F. Goodrich. Long ago, BFG engineers developed special types of tires for off-the-road service. They constantly developed new improvements. One of these was the nylon shock shield, a major construction advancement now used in all B. F. Goodrich truck tires with 8 or more plies (double nylon shock shield in large off-the-road tires)—including the new, All-Nylon tire.

For more information on how B. F. Goodrich nylon tires can do more work for you and save you money, see your BFG Dealer or write *The B. F. Goodrich Company, Akron, Ohio.*

● Metal Detector

Eriez Mfg. Co. has designed an electronic metal detector that will detect both ferrous and nonferrous tramp metal. It is particularly adaptable for installation on conveyor belts ahead of screening, pulverizing and crushing equipment. The unit operates effectively on belt speeds ranging up to 900 ft. per minute where magnetic separation is not applicable.

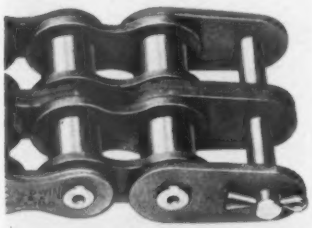
The product to be inspected is conveyed by belt to the search coil where it enters an electro-magnetic field. If foreign metal is present, the detector automatically stops the belt and marks the spot where it can be found. Marking is accomplished by small cylinders containing powdered limestone which are tripped automatically by a relay as metal passes into the search coil. Root pickers can quickly locate and remove foreign metal pieces, and by merely pushing the start button on the control cabinet, start the conveying system. Eriez Mfg. Co., 29 E. 12th St., Erie, Pa.



● Roller Chain Assembly

Chain Belt Co. has announced a new development in roller chain construction known as the Baldwin-Rex "BA" assembly. It is designed to simplify disassembly and assembly of roller chain in the field.

The new assembly consists of a 5-ft. basic length of standard riveted roller chain with a new single pin connector assembled at approximately the 2-ft. mark and at the end of the basic 5-ft. length. The connecting link employs one detachable pin and one rivet. It is necessary to remove only one pin to disconnect the chain. There are no other loose parts, since the plates making up the connecting link are all securely press fitted to the remaining rivet. The new single pin connector has a distinctive tear-drop shape for easy identification. Chain Belt Co., 1604 W. Bruce St., Milwaukee, Wis.



● Single-Disc Brake

An industrial brake, adapted by technicians of the Goodyear Tire & Rubber Company from its airplane-type, single-disc brake, has cut maintenance costs on shuttle cars by more than 50 percent.

The Joy Manufacturing Co., manufacturing mining equipment, is installing this single disc brake on all its new shuttle cars, continuous miner and some loading machine models. The brake is also available for installation on older model machines now in service.

Developed under the direction of C. A. Hulsemann, Goodyear sales engineer, the non self-energizing brake gives a soft-cushion braking action in contrast to quick-grabbing action of conventional types. The brake has a straight line torque curve throughout braking range and gives equal torque in both directions. It is simply constructed, easy to reline or replace and is self-adjusting over the entire life of the lining. The self-adjusting feature enables operators to enjoy a permanent pedal stroke at all times.

● Positive Displacement Blower

The Standard Stoker Company, Inc., 350 Madison Ave., New York 17, N. Y., announces that a new type of positive displacement blower is now in production at its Erie, Pa., plant, following an extensive period of research. The blower has wide applications in industry and is available in capacities from 100 to 15,000 c.f.m. and for pressures up to 20 lbs.

Unique features of the blower are its quietness of operation, its lightness, and its compactness.

A 2000 c.f.m. "Standardaire" blower weighs approximately 1000 lbs. Because it may be operated at high speeds, the blower lends itself to direct drive by standard motors.

Cleveland VIBRATING SCREEN SECTIONS

Extra tonnage from replacement vibrating screen sections means *extra* profits. More volume per section can be obtained from Cleveland Wire screens because they are made of production tempered abrasion resisting steel—accurately woven. This steel is tough but ductile . . . designed to withstand the *shattering* action, day-in and day-out, of high tonnage vibrating units. Install a Cleveland Vibrating Screen Section now—and PROVE the difference.

Write for Bulletin No. 6, illustrating types of hooked edges available for your vibrating equipment.

There's a CLEVELAND WIRE SCREEN for every purpose

THE CLEVELAND WIRE CLOTH & MFG. CO.
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WRING MORE PROFITS FROM GRAVEL

with Eagle Coarse Material Washer

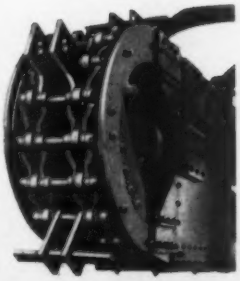
Deposits contaminated with clay, loam and silt can be worked profitably with an Eagle Coarse Material Washer. Material is "rubbed and scrubbed," by the screw flights loosening foreign matter which is floated up and out of the tub by rising currents. Clean gravel goes up and onto the belt, clean and dewatered. An Eagle Washer-Dewaterer quickly returned its cost for this Illinois producer.

or Eagle Log Washers

For stubborn cases — cemented aggregates, tough clay balls, soft stone admixtures—Eagle Log Washers are recommended. Often used in conjunction with an Eagle Washer — Classifier - Dehydrator on the sand. Paddles with replaceable, corrugated shoes chop through gummed up material—clay and debris are washed up and out and gravel free of clay. goes to gradation, screen or bin. Send a sample from your deposit for analysis and recommendations. Ask for Catalog 47.

FOR MORE PROFITABLE DREDGING!

Eagle Swintek Dredging Ladders agitates the material, screens nozzle against boulders, carries over-size out of pumping zone. Send for Catalog 745.



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"Swintek" Dredge Ladders
Screw Washers — Log Washers
Dehydrators — Sand Tanks — Classifiers

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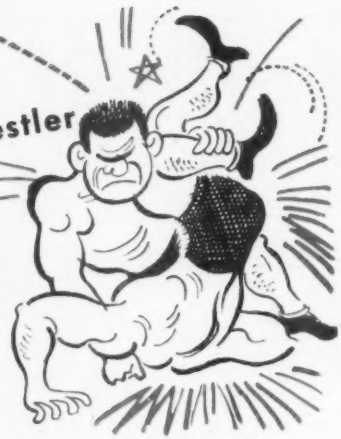
EAGLE IRON WORKS
133 HOLCOMB AVE., DES MOINES, IOWA

With more grips than a wrestler

AND

NO HOLDS BARRED..



A wrestler with exclusive right to use unbreakable holds would win every bout.

A similar advantage, responsible for its unequalled performance, is a feature of the Owen Grapple.

Its ingenious Patented principle of operation enables each tine, or prong, to dig in and grip independently of the other tines.

As a result the Owen Grapple gathers and grasps several rocks of varying size or holds in its unbreakable grip stone of tremendous sizes and fantastic shapes that could not possibly be handled by grapples of conventional design.

Get the Owen Grapple bulletin which proves these strong statements with many varied and interesting photos.

Owen Buckets and Grapples

THE OWEN BUCKET CO.
6080 BREAKWATER AVE., CLEVELAND 2, OHIO
Branches
New York • Philadelphia • Chicago • Berkeley, Calif.

A PUNCH PULL AT EVERY BITE

● Crawler-Mounted Excavator

A new ½-cu. yd. crawler-mounted excavator known as the "Model 66," has been announced by the Wayne Crane Division of the American Steel Dredge Company, Fort Wayne, Ind. The weight of 30,398 lbs. as a trench hoe seems to indicate exceptionally sturdy construction for a ½-cu. yd. machine. It is easily convertible to shovel, dragline, clamshell and a magnet or 7½-ton utility crane.

The new crawler assembly was designed especially for this machine and is built complete in the Wayne Crane plant. It is powered through direct-drive propeller shaft assembly from the new "direct power flow" transmission. This transmission is remotely located from the power unit and is connected by a right angle drive and universal drive shaft. This design favors easier and less costly maintenance and replacement, and practically eliminates the noise and backlash common to chain-and-gear drives. Bearings mounted on the outside of the drive sprocket minimize bending stress on the travel shaft. The bearing length of the crawler is 8 ft. 5 in., with a width of 8 ft., which makes for stable 360-degree operation. Self-cleaning, nonclogging treads can be used with grousers.

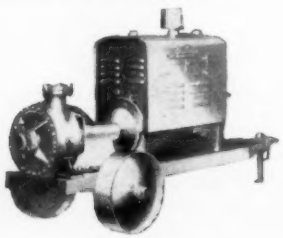
The upper works of the Model 66 is enclosed in a weatherproof, inside bolted cab of a new design which permits inside access to all deck machinery. Other features include either a worm-driven or live boom hoist, unit replacement of all subassemblies, a built-in counterweight to reduce rear end clearance of cab, 15-in.-diameter drums for increased life of the wire rope, and anti-friction bearings throughout for smooth operation.

Standard power unit for the Model 66 is a 6-cylinder gasoline engine which develops 62 hp. at 1800 r.p.m. However, any of several makes of diesel or gasoline engines of required power and speed may be furnished on customer's request.

● Self-Priming Jetting Pump

Four hundred g.p.m. at 150 lbs. pressure is claimed for the Model HP 150 Sterling pump.

The HP. 150 is primed by engine exhaust, a device which primes the pump rapidly (naturally dependent upon the suction lift). Sterling self-priming jetting pumps are available both in single- and multi-stage models. For extremely long pipe lines, these pumps are said to discharge their capacity in a thoroughly satisfactory manner. The Sterling Machinery Corporation, 405 Southwest Boulevard, Kansas City 8, Mo.



● Multiple-Jaw Wrench

A new type of multiple-jaw, positive grip wrench for holding pipes and solid rounds up to 2 in. in diameter is offered by the American Machine Works, Inc., Racine, Wis.

The "Link-Grip" wrench is made with seven hardened jaws. As a result, instead of having only two opposed jaws

contacting the surface, all jaws in contact grip the work around its entire periphery. Pressure is equalized on each jaw, producing a firm, steady torque for either tightening or loosening. Further, there is no danger of crushing or marring the pipe.

The Link-Grip has serrations milled in each of the seven links, and the handle is used for leverage only, not to lock the links. As leverage is applied, each link in contact bites into the work surface, preventing wrench slipping.

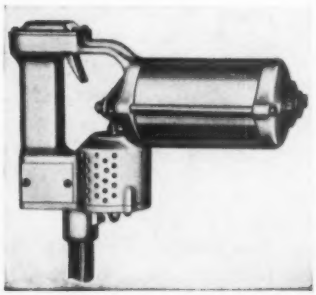
The wrench is made with a malleable cast iron handle, heat-treated for strength and toughness. The link lock, held in a notch near the link end of the handle, is also heat-treated and hardened. Pins in this lock engage the handle notch and an open slot in one of the links. Four links are slotted, providing a rapid means for wrench adjustment. Individual male and female links pivot on hardened pins, and the links move freely in either direction.

● Electric Hammer

Syntron Co. has recently added a new model of electric hammer, the Model No. 10, with a ⅝-in. diameter drilling capacity, to its line of portable electromagnetic hammers.

The new No. 10 hammer is entirely self-contained, with the rectifying unit now incorporated in the handle casting, so that the operator plugs the hammer cord directly to the 110 volt, a.c. power source.

This new development has been made possible by Syntron's research development and manufacture of a line of selenium rectifiers, enabling the use of a much smaller and lighter weight rectifier unit which could be included as a part of the hammer proper. Syntron Co., 385 Lexington, Homer, Pa.



"Sure, I'd wear a respirator . . .

. . . if it was comfortable!"

Respirator Style 45D

Respirators must fit properly and provide ease of breathing before workers stop risking their lungs—and your profits.

Protection must be combined with comfort. One without the other means a wasted investment in safety equipment. Here is a WILLSON lightweight respirator, approved by the U. S. Bureau of Mines for use in dusts and mists. It has gained wide acceptance in industry through workers' willingness to wear it. Normal breathing is assured through easily replaceable filters and a positive acting exhaust valve. The facepiece, in two sizes with adjustable wire nose spring and adjustable elastic headband, is adaptable to all face sizes.

NEW CATALOG

In addition to product information, it contains information on safety glass, filter glass, respiratory hazards, etc., which will help you select proper safety equipment to meet specific hazards. Send for it!

WILLSON
"Established 1870"

WILLSON PRODUCTS, INC., 102 THORN STREET, READING, PENNA.

SAVES $20,400 A YEAR FOR CHEMICAL PLANT

THIS 65-TON G-E DIESEL-ELECTRIC SWITCHER proves a wise investment for American Cyanamid's Calco Chemical Division. Switching costs are $1,700 less a month. It's ready for work 95 percent of the time. And it gives maximum safety in inflammable areas. Big differences from the replaced steamer!

ANNUAL RETURN—47%. Used for transfer work and intra-plant switching this 65-tonner paid for itself in less than 2½ years. This is how: Maintenance was cut sharply. Hourly fuel costs were down 84 percent. Derailments, more than one a week with the steamer, were eliminated.

HOW YOU CAN BENEFIT. This performance is typical of G-E locomotives. Your plant, too, will reduce switching time up to 50 percent—will switch cars dependably and economically—will maintain the safest, cleanest working conditions possible—*if you switch with G-E diesel-electrics.*

Your G-E representative can estimate, in advance, the savings you may expect. Call him today. For an estimate of the size switcher you would require, write on your business letterhead for your FREE diesel-electric slide rule. Address Section 120-48C, *Apparatus Dept., General Electric Co., Schenectady 5, N. Y.*

You can put your confidence in—

GENERAL ELECTRIC 120-48

More Information, Please

CHECK AND MAIL THE CARD BELOW FOR ADDITIONAL INFORMATION ON NEW MACHINERY AND SUPPLIES

1. Cement Colors and Mortar Colors. Two pocket-size folders. Each contains a color chart and instructions for using these colors. C. K. Williams & Co.

2. D.O. James Speed Reducers. Catalog No. 40-B. Covers continuous tooth herringbone gear reduction gears. Contains rating tables with simplified methods of selection of proper drive. Ratio range from 2 to 360 to 1 with capacities up to 3500 hp. Also included are horsepower ratings, overhung load capacities, dimensions and weights of single, double, and triple reductions. These gear reductions are available in 65 sizes. D. O. James Gear Mfg. Co.

3. The Wilcox Rubber Pinch Valve. 4-page bulletin presenting a "non-clogging, non-corroding" valve and a rubber valve tube. Outstanding features are listed and explained, typical applications are suggested, and service recommendations are given. Sectional views and photographs are included. Ray Wilcox Co.

4. Sterling 6 x 4 Enclosed Drive Heavy Duty Motor Trucks. 8-page booklet, illustrated with photographs, drawings, and closeups of parts. Special attention is given to frame construction, the load carrying members, brakes, final drives, engines, clutches, transmissions, front axles, and cab features. Sterling Motors Corp.

5. Aspirin's No Antidote for Kiln Door "Headaches". Vest-pocket folder supplying condensed information on Uni-Temp insulated all-metal doors and door carriers. Universal Door Carrier, Inc.

6. How to Run a Lathe. Volume I, Edition 49. A copiously illustrated handbook on the care and operation of a screw-cutting lathe. Includes such topics as the history of the lathe, setting up and leveling, operation, lathe tools and their application, plain turning, chuck work, etc. South Bend Lathe Works.

7. Operator's Manuals—TD-14A Crawler Tractor, TD-24 Crawler Tractor, and TD-18A Crawler Tractor. Three manuals containing wall-charts (inserted) of lubrication guides for these International tractors. They contain many illustrations and detailed factual information, including descriptions, specifications, instructions for operation, operating precautions, helps on preventive maintenance, special attachments, etc. International Harvester Co.

8. Manitowoc Central Control Valve for Slurry Agitators. Catalog No. C.V. 49 IM. An illustrated folder presenting this valve and the operating economics reported for it. Manitowoc Engineering Works.

9. Bin-Flo Aerator Unit. A 4-page bulletin with specifications and prices (insert) included. Contents: typical Bin-Flo aerator layouts (illustrated), explanatory notes, air supply data, and typical applications. The Bin-Dicator Co.

10. Logan Industrial Wire Cloth. Flier containing available mesh sizes, with full-scale illustrations. Sketches show typical uses. Logan Co., Builders Iron Div.

11. The Thoro System. Circular No. 17. 20-page booklet on Waterplug, Thoroseal, Quickseal, and other supplies. Each of these products is described, pictured and explained in detail. Photographs of applications show how the Thoro System is used. Included is the Thoro System Guide for the designer and specification writer. Standard Dry Wall Products, Inc.

12. New Equipment in Stock Available for Quick Shipment. Bulletin G-4907-N. Pictures and describes 23 types of equipment and presents details of the Denver Ore Testing Service. Denver Equipment Co.

13. Fleming of St. Louis—Complete Concrete Block Plant Machinery. 4-page bulletin presenting in pictorial form the story of Super Blocks made "the Fleming way." A sketch shows a typical block plant installation. Specifications of Fleming products are included. Fleming Mfg. Co., Inc.

14. Move More for Less on Lippmann Belt Conveyors. Bulletin 1400. 32-page bulletin containing complete information on stationary, portable and 16 types of special-purpose belt conveyors (troughed and flat belt). Suggested applications; data on selecting belt conveyors; dimensions, weights, and specifications for standard head, tail and intermediate sections; lattice, channel and timber frames; and terminal machinery. Fully illustrated. Lippmann Engineering Works.

15. Multico Block Machines. 4-page bulletin describing this automatic machine and listing its advantages. Presents the special feature—a separate "Power-Pack" control cabinet. Multiplex Machinery Corp.

16. Crushers, Grinders, Shredders, Choppers Custom-Built to Fit Every Requirement. Photographs and sectional views supplement this presentation of American Pulverizer equipment. Tables of capacities on horsepower, weight and dimensions are included. American Pulverizer Co.

17. Le-Hi Suction and Water Hose Couplings. Bulletin No. 5. Describes the complete line of Le-Hi suction and water hose couplings. Includes descriptions of several new items such as brass suction and water hose couplings with hexagon swivel nut, petroleum couplings, fire hydrant reducer coupling, etc. Hose Accessories Co.

18. Heliwelding Inert Gas Shielded Arc Welding. Catalog 9. Illustrated 16-page booklet explaining the process and when to use it. Contains sections on equipment for manual, semi-automatic and automatic operation; a new automatic filler-wire feeder; and power supply equipment. Air Reduction Sales Co.

19. Hyster 20 Lift Truck. 8-page catalog (No. 1135) containing model views, action photographs, and descriptive text describing the Hyster Model 20, a 2,000-

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February, 1950

PIT AND QUARRY:

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lb. capacity lift truck. Chief features are presented, and specifications and detailed information are included. The Hyster Co.

20. For Longer Wear—Less Repair—Jalloy. 26-page brochure describing Jalloy, "a special alloy steel" used in the mining, quarrying, and earth-moving industries. Includes complete technical data, with tables on chemical composition, grain size, and various physical properties relating to surface hardness, yield strength, etc. Jones & Laughlin Steel Corp.

21. Haiss Power-Wheel Buckets. Bulletin No. H 849. Features power-wheel buckets for rehandling, coal special clamshell buckets, material loaders, heavy-duty clamshell buckets, and other Haiss products. Includes tables of specifications, a parts list, photographs, and sectional views. George Haiss Mfg. Co., Inc., division of Pettibone Mulliken Corp.

22. Corrosion-Resisting Macwhyte Preformed Wire Rope. Folder 49-50. Lists 133 sizes and types of wire rope, together with typical uses for each. Macwhyte Co.

23. Value Guide for Buyers of ¾–2½ Ton Trucks. 11-page booklet fully illustrated with photographs, drawings, close-ups, and cutaway views. Contains a table of specifications listing all data needed for selection of trucks. G.M.C. Truck & Coach Division, General Motors Corp.

24. Oro Alloyed Manganese Steels. Bulletin 1049. Pictures and describes Oro wearing parts for power shovels and crushers. Indicates particular alloyed steels appropriate for specific applications, such as dipper teeth, crusher jaws, etc. Also describes the Quad-Edge renewable tip pulverizer hammer of Kenkrome and Oroloy. Kensington Steel Co.

25. A New Portable Electric Tachometer and Cutmeter—Model M-1200-F. Bulletin No. 492. A full description and specifications are given for this device, designed for precision laboratory and industrial service. The Electric Tachometer Corp.

26. Bulletin P1170. Two-color, 4-page folder giving instruction on how to operate gas trucks safely and with minimum wear to moving parts. Valuable in training courses. The Yale & Towne Mfg. Co.

27. Bellows Standard Air Valves. Bulletin AV100. Complete information on a series of 2-, 3-, and 4-way valves for remote control of standard air cylinders or for incorporation in existing air systems. The bulletin is fully illustrated with photographs and drawings, and contains a table of dimensions for each type of valve shown. The Bellows Co.

28. Link-Belt Ball and Roller Bearings. Book No. 2550. 112-page catalog and engineering data book covering the company's complete line of ball and roller bearings. Contains information on construction features, prices, weights, load ratings and all necessary dimensions for various standard models available. Link-Belt Co.

29. Industrial Visual Efficiency. 16-page booklet presenting visual efficiency in industry as a management opportunity. Describes a plan for industrial safety and visual efficiency. American Optical Co.

30. A New All-Star Line-up of Rust Preventives. Describes and lists the uses for each of the 11 Rust Veto products developed by Houghton. Contains a full-page chart outlining the physical properties of each and lists data on thickness and type of film, amount of coverage obtained in use, etc. Photographs show results of the use of these products upon pieces subjected to severe testing. E. F. Houghton & Co.

31. Knowles Associates—Chemical, Metallurgical, Mechanical Engineers. A booklet identifying this firm and presenting its specialties, services, experience, typical projects, and some of its clients. Knowles Associates.

32. Symons Cone Crushers and Symons Vibrating Screens. A brochure containing suggestions for arranging equipment to make up complete portable and semi-portable crushing and screening plants. Includes flow-sheets and tables showing arrangements, horsepower requirements and conveyor, screen and crusher specifications for various hourly capacities. Nordberg Mfg. Co., Crusher Division.

33. Patterns, Castings, Machine Shop Work, Plate Steel Work, and Custom-built Machinery. Bulletin No. AS-400. Describes the Hardinge plant facilities in detail, as indicated in the title. Effectively illustrated with photographs and drawings of numerous products, such as grinding mills, rotary dryers, regulating feeders, classifiers, thickeners, clarifiers, sand filters, etc. Hardinge Mfg. Co. (Subsidiary of Hardinge Co., Inc.)

34. Valuable Concrete Form Labor Cost Information. (Condensed from supervisor's reports.) Illustrated with photographs showing the use of Atlas Speed Forms on the job. Included is a section on variables to consider in estimating concrete and concrete form costs, also a list of errors to guard against. Irvington Form & Tank Corp.

35. Carter-Waters Blok-Mesh and Carter-Waters Blok-Seal. Two bulletins, the first featuring high-tensile wire rods welded into re-inforcing for concrete masonry construction, the second describing a waterproofing paint for concrete masonry surfaces. The Carter-Waters Corp.

36. Houghto-Solv. 6-page folder on a fast-acting fuel oil additive for dissolving sludge in oil storage tanks and in the entire system. Gives physical composition, method of functioning, and results. Many illustrations are included. E. F. Houghton & Co.

37. The Versatile Foldaway Scoop-Lift. Flier on a handling unit which can operate in low areas, lift heavy loads and be extended to reach high levels. Hydraulic operation; capacity, 6,000 lbs. Specifications listed and major features described. Mixermobile Mfrs.

38. Katolight Converters, Motor-Generators, High Frequency Generators. Form 549-MG. Illustrated bulletin presenting these units and giving full description of each. Kato Engineering Co.

39. Catalog No. 1201MH. Contains detailed specifications and prices on a complete line of integrated materials-handling equipment, such as casters, running gear for trucks, standardized load carriers, portable lightweight wheel platforms and jacks, etc., also Load-Mobile storage-battery-operated lift-truck tractors and freight trucks. Profusely illustrated. Market Forge Co.

Pit and Quarry

FIRST CLASS
PERMIT No. 44
(Sec. 510, P. L. & R.)
CHICAGO, ILL.

BUSINESS REPLY CARD
No Postage Stamp Necessary if mailed in the United States

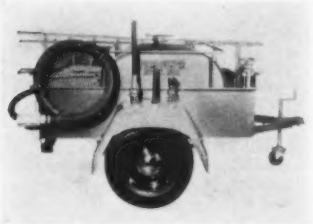
2 CENTS POSTAGE WILL BE PAID BY

Pit and Quarry Publications
538 South Clark Street
CHICAGO 5, ILL., U.S.A.

● Fire Fighter

A new model "Porto-Pumper" fire fighting trailer is announced by Porto-Pump, Inc., 227 Iron Street, Detroit 7, Mich. The device is literally a complete fire department.

The Porto-Pumper is equipped with the following: a demountable Porto Pump,



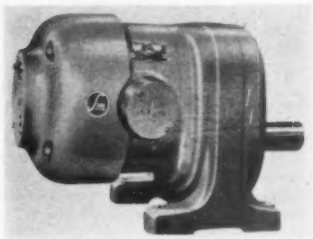
which is a rotary positive-displacement type of rubber gear pump, powered by a 4-cycle gasoline engine; a supply hose; an aluminum extension ladder; 200 ft. of fire hose; a fire axe and a hand extinguisher; a straight stream nozzle; a combination fog and straight stream nozzle; a 200-gal. water tank supply for use while the hydrant or other originating supply of water is made available.

The Porto-Pumper pumps water from any source—hydrant, well, ditch, pond or stream.

This Porto-Pumper unit can be attached to any vehicle. Extensive training is not necessary, since the pump is easy to operate.

● Geared Motor

Sterling Electric Motors, Inc., of Los Angeles is currently introducing a new improvement on their "Slo-Speed" geared motors. This new type of geared motor is of "Klosd-Tite" construction



for atmospheres containing non-explosive dusts, vapors, and injurious foreign materials.

An external fan forces powerful cooling blasts of air over the streamlined case. This new Sterling "Slo-Speed" "Klosd-Tite" motor, Type FWFB, is totally enclosed and includes such outstanding Sterling features as labyrinth seals, liberal heavy-duty ball bearings lubricated for life, and the Sterling patented Herringbone rotor, with Sterling motor and Sterling gears combined in a balanced design from power intake to drive shaft. As in all Sterling designs, this "Slo-Speed" "Klosd-Tite" motor can be mounted in any position without modification.

"Our 5 SECO Screens in daily use—never shut down for repairs"

says Roy Webster, Bundy Concrete, Sherbourne, N.Y.

Here is another example of Seco performance on the job! The Seco pictured above is one of 5 now in constant daily operation at the Bundy Concrete Company's plant. For maximum capacities, correct sizing and trouble-free operation, you can't beat Seco vibrating screens.

The modern, efficient plant layout of the Bundy Concrete Company, naturally calls for Seco vibrating screens. Seco's controlled, true circular action is a boon to good production.

In the words of Mr. Roy Webster, Sup't. at Bundy: "For smooth, consistent operation, nothing else compares with a Seco. Our five Secos are never shut down for repairs."

Seco Can Improve Your Screening Results
Send for new Catalog No. 203, Dept. L

SECO VIBRATING SCREENS

SCREEN EQUIPMENT CO., INC.
1752 WALDEN AVENUE BUFFALO 21, NEW YORK
In Canada, United Steel Corp. Ltd., Toronto, Ont.

● Portable Air Compressor

For users who prefer full diesel-engine drive for their portable compressors, a new 500-c.f.m. "Mobil-Air" has been announced by Ingersoll-Rand. The engine is the well-known International-Harvester heavy-duty UD-24, which starts easily as a low-compression gasoline-engine and after a short warm-up period is shifted to full diesel operation by means of a single lever.

This portable, known as the IKA-500, has all the features used on Ingersoll-Rand's KA-Series Mobil-Air compressors in sizes from 105- to 500-c.f.m. The new floating-speed regulator slows down the compressor to the lowest practical working speed that compresses just enough air to hold the pressure. This results in greater fuel savings and higher average air pressures. Full 500-c.f.m. capacity is delivered at rated 100 p.s.i. pressure. Other features include two-stage air-cooled compressor, "Hydro-Shift Flex-Disc" clutch, channel valves, and sturdy running gear and mountings. In addition, the compressor is said to have a new more efficient air cleaner which is easier to service.

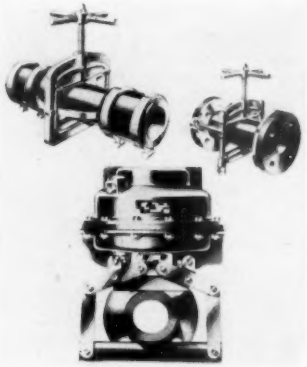
500-c.f.m. Mobil-Air.

Previously the 500-c.f.m. portable compressor has been available with either the type H oil engine or the high-economy heavy-duty Waukesha gasoline engine. Now, with the addition of the IKA-500, this compressor is available with a choice of three engines. Ingersoll-Rand Company, 11 Broadway, N. Y. 4, N. Y.

● Long-Life Valves

The Flexible Valve Corporation, Palisades Park, N. J., has released three new lines of "Flex-Valves." These consist of the "slip-on" type 7100, in sizes ½ in. to 2½ in., which mounts over the ends of the pipe, the flanged-end type 7200 in sizes 1 in. to 12 in., and the diaphragm motor type in sizes 1 in. to 10 in.

The valves have met with wide acceptance, particularly in sand, cement, rock, gravel, mining, clay, and related industries. The valve is claimed to be practically indestructible on abrasives or corrosives not affecting rubber, Neoprene, Buna N and butyl. There are no internal parts or obstructions. Other features cited are freedom from water hammer, 11-to-1 life on abrasives over steel, non-clogging service, full pipe capacity, and absolute bubble tightness.



The diaphragm type is used for remote control or instrument control. Operating air or fluid will close or open the valve as required. For very precise operation a Valve Positioner is used as standard.

Because of the low cost of these revolutionary valves, large industries are using them on air lines. The extreme tightness reportedly returns the entire investment in less than two weeks.

A. P. DeVita has been appointed New York District sales manager for Robins Conveyors Division of Hewitt-Robins. Mr. DeVita has been with Robins Conveyors for four years as foundry production manager. In his new position he will direct and supervise sales for Robins Conveyors Division in the New York area.

EASY MANEUVERABILITY—RUGGED DEPENDABILITY

MINNEAPOLIS-MOLINE MM MODERN MACHINERY

INDUSTRIAL WHEELERS

Get More Work Done Per Hour.....

When you want to speed the job—do it with MM Industrial Wheelers. Operators of ready-mix concrete plants report loading 70-80 tons of gravel per hour with MM Industrial Wheelers on average hauls of 100 feet from stockpile to hopper.

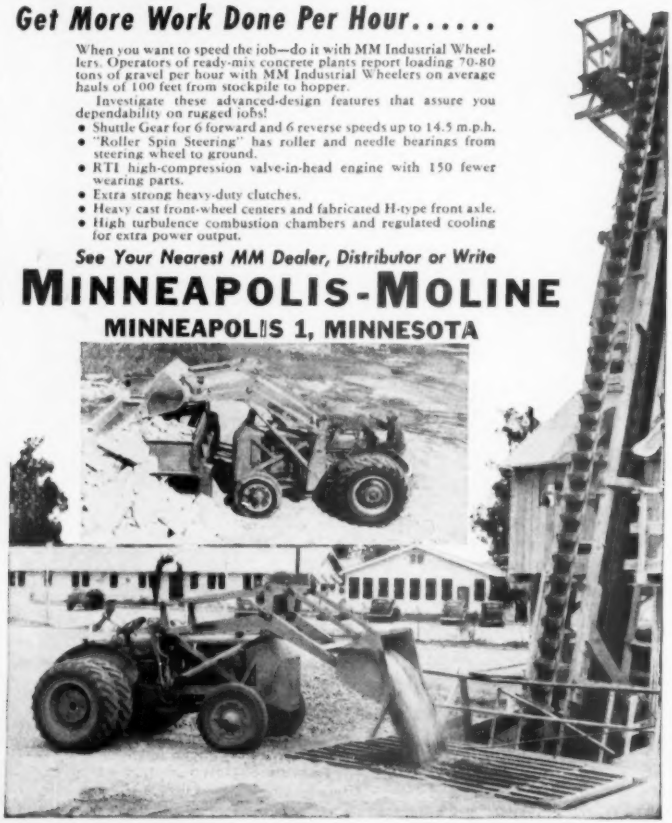
Investigate these advanced-design features that assure you dependability on rugged jobs!

- Shuttle Gear for 6 forward and 6 reverse speeds up to 14.5 m.p.h.
- "Roller Spin Steering" has roller and needle bearings from steering wheel to ground.
- RTI high-compression valve-in-head engine with 150 fewer wearing parts.
- Extra strong heavy-duty clutches.
- Heavy cast front-wheel centers and fabricated H-type front axle.
- High turbulence combustion chambers and regulated cooling for extra power output.

See Your Nearest MM Dealer, Distributor or Write

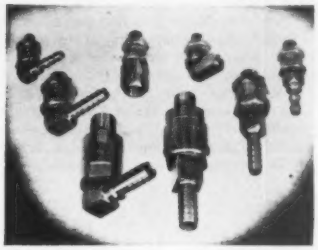
MINNEAPOLIS-MOLINE

MINNEAPOLIS 1, MINNESOTA



● Swivel Connectors

The Cleveland Vibrator Company, 2710 Clinton Ave., Cleveland 13, O., has announced the availability of a completely new line of air-tight swivel con-



nectors designed for use with all types of compressed air-operated tools.

When used at the air intake connection of air-powered tools, these new Cleveland connectors provide a full 360-degree swivel action which increases operator efficiency.

The new Cleveland swivel connectors are designed to facilitate rapid and easy changing of tools and provide for increased hose life by eliminating unnecessary kinking and buckling of air feed lines.

These connectors are fabricated of rust-resistant steel, and they can be furnished from stock in straight or "ell" types to fit hoses from ¼- to 1-in. in size and pipe from ⅛- to 1-in. in size.

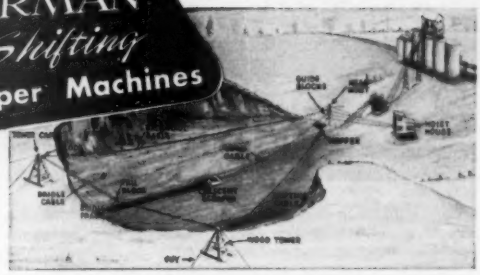
● Crawler-Mounted Shovel-Loader

Crawler type traction is now available on the revolutionary "Dempster-Digg-ster." The new tractor hydraulic shovel and loader is also produced as an automotive unit on rubber-tired wheels by Dempster Brothers, Inc., Knoxville, Tenn.

The new Type "CR" Model 100 features the exclusive hydraulic crowd-and-hoist principle of the rubber-tired loader. In the accompanying illustration the unit is ready to unload a 1-cu. yd. (heaped) bucket of hard chert after digging out a 15-ft. bank. Four interchangeable buckets of two types are available—the 1- and 1¼-cu. yd. (heaped) digging buckets, and the 1½- and 2-cu. yd. (struck) buckets for handling loose materials.

Gross weight of the new Diggster is 21,480 lbs. It is mounted on a TD-9 International diesel crawler tractor, but the unit is available on other makes of tractors.

SAUERMAN
Rapid Shifting
Drag Scraper Machines



Speed Up Digging in Hard Deposits

Move More Tons Hourly with Same Power

NEW SERIES. Sauerman Power Drag Scraper Machines give operator at scraper hoist COMPLETE AUTOMATIC CONTROL of shifting tail end of machine—and instant spotting of scraper bucket wherever he wishes. Results: greater speed and economy—time and labor saved.

Feature of machine is Sauerman 3-drum hoist and elevated tail bridle assembly. Bridle cable is stretched between 2 tail towers. Bridle frame for tail block rides on cable. Third drum of hoist moves bridle frame in one direction and pull of outhaul cable, the opposite. Drum when braked holds frame positioned as desired.

Equipped with 1/3 to 4 cu. yd. Crescent buckets. Gasoline, electric, or diesel 3-drum roller bearing hoist furnished with each machine. Normal cable spans from 200 to 400 ft., can be extended if necessary.

Send for Sauerman Catalog 19-A for full details, illustrations, etc.

SAUERMAN BROS., INC.
534 S. Clinton St. Chicago 7, Illinois

THE MODERN MACHINE
for efficiently sizing test samples of sand, gravel, crushed stone, slag, and similar materials.

GILSON
MECHANICAL TESTING SCREEN

Classifies coarse or fines from 4" to 200 mesh

IT'S EASY to assure a controlled, high-quality product, by running test samples of your materials through a GILSON Screen.

This compact and sturdy unit operates quickly and accurately, making from two to seven separations simultaneously, in five minutes or less.

It handles samples up to one cubic foot, and may be used for routine testing, for research work or for special separation jobs involving very fine materials.

For complete and valuable knowledge of your product, a GILSON Screen provides "all the answers."

Complete information sent on request

GILSON SCREEN CO.
BOX 186 MERCER, PA.

trade notes

"Forward with Federal in '50" was the theme of a huge new sales and advertising program mapped by Federal Motor Truck Company executives at a three-day conference in Detroit. Expressing confidence in Federal's dealer organization to establish new sales records under normal market conditions, Carl Loud, general sales manager, said that more publications would carry Federal advertising this year than in any postwar year.

Also on hand for the parley were Lewis I. Seaver, advertising director, and three assistant general sales managers: H. J. Hamernik (central zone), A. R. Winberg (western zone), and W. L. Hayes (eastern zone). Forty-two national and regional trade publications, including PIT AND QUARRY, were added to the company's advertising schedule.

• Federal Truck Co. key sales officials—standing (left to right): Lewis I. Seaver, H. J. Hamernik, A. R. Winberg, and W. L. Hays. Seated: Carl Loud.

Herman Schifflin, 81, who retired in 1942 as manager of the crushing, cement and mining machinery department at Allis-Chalmers Manufacturing Co., Milwaukee, Wis., died on January 9.

Mr. Schifflin entered the employ of Fraser & Chalmers, Chicago, in November, 1886. In 1901 the company was merged with the Edward P. Allis Co., the Gates Iron Works, Chicago, and the Dickson Mfg. Co., Scranton, Pa., to form the Allis-Chalmers Company. Except for an absence of five months, he had been associated with Allis-Chalmers from then until his retirement.

A native of New York, Mr. Schifflin received his schooling in Chicago, where he was also employed by the Excelsior Iron Works, the Chicago Iron Works and Gates Iron Works. During his association with Allis-Chalmers, he was recognized as dean of the country's cement machinery salesmen. His travels took him to every state in the Union and to a number of foreign countries.

E. C. Bitzer was appointed executive vice-president and general manager of the Colorado Iron Works Company upon the recent death of T. A. Dickson, president.

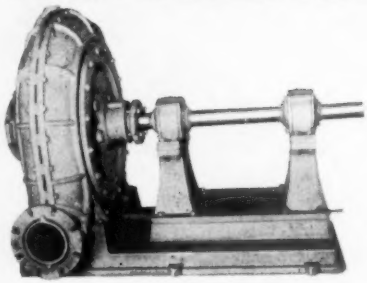
Before joining Colorado Iron Works in 1941 Mr. Bitzer had been associated with various mining companies in the Philippines and Malaya as mill superintendent and metallurgical engineer.

Farrel-Birmingham announces the appointment of David Neill as Cincinnati sales representative for gears, gear units and flexible couplings manufactured in the company's Buffalo plant. Mr. Neill first joined the F-B sales department in April, 1945, after spending the three previous years in the company's gear manufacturing division.

Link-Belt Company, well-known manufacturer of chains, elevators, conveyors, and power transmitting machinery, has announced the opening of a new manufacturing plant at 3203 South Wayside in Houston, Tex.

The new Houston plant, comprising approximately 45,000 sq. ft. of floor space, includes a one-story, all-steel factory building with three bays, and a two-story office section of masonry construction in front. The plant proper consists of a modern machine shop, a structural steel shop and large warehousing facilities.

TWO PROVEN FACTS:



6" Heavy Duty "Tell-Tale" Pump Equipped with Ball Bearings

1. You CAN'T wear out a "TELL-TALE" CENTRIFUGAL SAND AND GRAVEL PUMP *SHELL.*

2. You CAN produce more Aggregate year after year with a "Tell-Tale" Pump than with any other make, size for size, that you've ever used, seen, or heard of.

PROOF

The first statement is proved everywhere "Tell-Tale" Pumps operate. It is made possible by the patented Split Shell, with its Inner Shell Liner, which takes all of the wear that would otherwise be absorbed by the Shell. The unique "tell-tale" warning the operator receives when the Shell Liner has worn thru, prevents any wear from taking place on the Split-Shell. Descriptive Bulletin gives complete details. Satisfaction guaranteed.

The second fact has been long established by hundreds of users in 17 States. This is due to the higher vacuum "Tell-Tale" Pumps build up, which means greater suction and the ability to discharge against higher "heads".

Write for descriptive Bulletin "P", stating size Pump in which you are interested.

PEKOR IRON WORKS, INC.

Lock Drawer 909 Columbus, Georgia

The Osgood Company and The General Excavator Company of Marion, O., announce the appointment of Equitable Equipment Company, 410 Camp Street, New Orleans, La., as distributors of Osgood and General equipment in the southern portion of Louisiana, and the six southernmost counties of Mississippi.

W. J. Fredrick has been named manager of Mack Trucks Newark (N. J.) branch, with headquarters at 1239 Broad Street, while G. F. Zeller becomes manager of the New Brunswick (N. J.) branch.

A Bay City "65" dug the first bucket load of dirt preparatory to the construction of Tractor & Equipment Company's new plant on the southwest edge of Chicago. A Bay City "25" backhoe is digging foundations, and concrete will be prepared with Willard self-loading weigh-batchers and Willard transit mixers. The new plant will be located on a 5½ acre tract of land three miles outside of Chicago city limits. It is expected that the new building will be completed within a few weeks.

Retirement of William T. Keenan as district sales manager of the Chicago branch, mechanical goods division, United States Rubber Company, was announced by W. A. Tipton, branch sales manager. He was a veteran of 39 years of service with the company. Joseph A. Conlon, formerly assistant district sales manager, was named to succeed him.

obituaries

GEORGE SAMUEL RICE, retired chief mining engineer of the U. S. Bureau of Mines, died at Washington Sanitarium in Takoma Park, Md., on January 3. Dr. Rice was a pioneer in applying scientific knowledge to increase safety and improve efficiency in the mining of coal.

Born in Claremont, New Hampshire, in 1866, Dr. Rice had two decades of mining experience behind him when in 1908 he joined the Technologic Branch of the U. S. Geological Survey to investigate the causes of coal-mine explosions. Two years later, when the Bureau of Mines was established, he became chief mining engineer of the bureau, with headquarters at Pittsburgh, Pa.

HENRY A. BENINGER, former president of the National Safety Council, died in Allentown, Pa., on December 9, 1949, after an extended illness.

Mr. Beninger organized and directed the safety department of the Lehigh Portland Cement Company, with which he was associated for 41 years. He was one of the leaders in the National Safety Council and served as its president in 1928 and 1929. He was a member of the council's executive committee until 1947. In that year he also retired from active service with Lehigh.

He served in both World War I and World War II and attained the rank of colonel in the United States Army. At the time of his death Mr. Beninger was brigadier-general in the Pennsylvania National Guard. He was 64 years of age.

MALCOLM B. COATE, owner and manager of the Arkadelphia Sand and Gravel Company, Arkadelphia, Ark., died at his home in that city on December 13, 1949, at the age of 64 years.

WALTER J. MAOR, a former partner in the Ravenna Sand & Gravel Company, died on December 18 at Ravenna, O.

CONVEYORS AND PICKING TABLES

Reduce your materials handling costs with Bonded Idler Conveyors and Picking Tables. Lengths from 10' to 500', widths to 60".

PRICED FROM **$395.00**

BONDED VIBRATING SCREENS

Capacities to 200 tons per hour. Sizes from 2'x4' to 5'x14', and with 1 to 5 decks. Complete with screen cloth or plates.

PRICED FROM **$395.00**

IMMEDIATE DELIVERY

BONDED SCALE & MACHINE CO.

129 Bellview Ave. — Columbus 7, Ohio
Ph. Garfield 2186 — University 2832, Eves.
Scales • Conveyors • Idlers
Vibrating Screens • Crushers • Feeders

More Rigid Size Control . . . Wide Crushing Range with AMERICAN HAMMERMILLS

Three hammer types are furnished for the specific action you require.

BRUTE for heavy | BROADHEAD for medium | SPLITTER for fine

From agstone to roadstone sizing, Americans offer the *flexibility* and precise control of sizing to make each specific reduction job more efficient—and more profitable.

For Maximum Fines, the ACS is available in center feed that lengthens travel of stone in hammer circle and assures more frequent impact.

For Minimum Fines, the front feed ACS gives you a coarser product—for high tonnage aggregate and road-stone sizing.

Write for your copy of "Better Stone Crushing."

American PULVERIZER COMPANY

Originators and Manufacturers of Ring Crushers and Pulverizers

1059 MACKLIND AVE.
St. Louis 10, Mo.

legal decisions

By **LEO T. PARKER**
Attorney at Law
Cincinnati, Ohio

Recently a reader wrote an interesting letter, as follows: "For several years I have read with a great deal of interest your legal reports. Now, I have a legal problem. We hired a minor to drive our motor truck. He ran over and killed a small child who was riding on the truck and fell off. Are we responsible for injuries caused by a minor employee? Are we liable to the parents of the child? Can this truck driver be made to pay part of our loss?"

The answer is: Generally speaking, a truck driver can be compelled to pay a portion of a damage allowance resulting from his negligence. However, according to a recent higher court this is not the law if the negligent driver is a minor. Also, the fact that the truck driver permitted the child to ride on the truck is evidence of imputable negligence, which results in the truck owner being liable in damages to the child's parents.

For example, in *Jacklich v. Starks*, 87 N. E. (2d) 802, the testimony showed facts, as follows: One Starks was employed to drive an International truck and trailer belonging to a partnership. Starks is a minor, being only 18 years of age. The truck was being used to haul gravel to resurface a public highway. When he was unloading gravel, a child of about five years of age was upon the highway watching the work being performed by Starks. After the gravel had been unloaded, Starks stopped his truck, went to the rear, unfastened the leveller from the truck, started it forward, and in some manner ran over and killed the child.

The parents of the child sued both the owner of the truck and Starks for damages.

During the trial the partnership insisted that the child was a trespasser in attempting to ride upon the truck. Further testimony was given which proved that Starks had knowledge that children had been upon the truck while it was being unloaded, and that they were still around the truck when he drove away after unloading the gravel. In view of this testimony the jury held the partnership owner of the truck liable in heavy damages. The higher court approved the verdict and said:

"Question of negligence of the truck driver in driving away with knowledge that children were still around truck was fact for the jury to determine . . . Whether his acts in doing so were negligent and his negligence was the proximate cause of the injury."

The higher court refused to hold Starks liable, saying:

"During the course of the trial it was disclosed that Starks was a minor at the age of eighteen years . . . The judgment against Starks should be, and is hereby reversed."

$30,285 Damages

According to a recent higher court, you are liable in heavy damage liability if an automobile collides with the rear end of your truck if it has no lights at night.

In *Parr v. Douglas*, 34 N. W. (2d) 229, it was shown that a disabled vehicle was being towed to a garage for repairs at night. No tail lights were on the rear and a passenger car traveling at high speed collided with it, seriously injuring the occupants.

The higher court held the injured occupants entitled to recover $30,285 damages.

BIG TONNAGE on the move! That's what you want. That's what you need. Get it! . . . with a Cincinnati Conveyor Belt. Get their BIG TONNAGE capacity . . . the EXTRA YEARS OF SERVICE . . . their LOWER BELT COST PER TON CONVEYED.

Don't wait. Do it NOW. Get all the facts. Write, wire or phone TODAY!

THE CINCINNATI RUBBER MFG. CO.
CINCINNATI 12, OHIO

CINCINNATI CONVEYOR BELTS

Must Keep Books

All higher courts hold that failure of business firms to keep books *in detail* reduces their chances of winning all suits involving taxes. Therefore, failure of a company to separate labor and service costs on its books may result in the firm having to pay a state's sale tax, plus penalties, on the *full* amount of money received on all installation, construction, and repair contract.

For instance, in *Ferguson v. Cook*, 220 S. W. (2d) 808, it was shown that the Ferguson Monument Works manufactures and sells monuments. In keeping accounts with its customers, its bookkeeper entered the total sales price of each monument, including all labor services as a part of the sale price. At the close of the month the total amount of sales was entered and one-half was specified as labor. This was done because by past experience the company's bookkeeper knew that approximately one-half the sale price of monuments was labor and service costs.

It is interesting to observe that the higher court ordered the company to pay the state's sale tax on the *full* amount of the sales, plus heavy penalties, although by law it would ordinarily be required to pay the sale tax on only the selling price of the materials. The court said:

"This stipulation involves primarily the question whether when a monument dealer sells and erects a monument at a grave for a specified sum of money, the sales tax shall be assessed for the full price paid for the monument and incidentally whether a penalty should be imposed for the non-payment of this tax . . . The penalty was properly imposed and the decree imposing it is therefore affirmed."

Contractor Stands Loss

Considerable discussion has arisen from time to time over the legal question: If a cement contractor contracts to furnish materials and labor for performance of an installation or alteration contract, who must bear the loss if the materials are destroyed or stolen after being delivered to and accepted by the property owner? The answer is: The contractor must suffer the loss.

For example, in *Kopald Company v. Mandan*, 37 N. W. (2d) 253, the testimony showed these facts: A contractor delivered materials to the building intending to make installation within a day or so. The building owner took possession of the materials for the contractor. That night a fire destroyed the building, including the contractor's materials and appliances.

In subsequent litigation the higher court held that the contractor must bear the loss. The court said:

"When the contractor is to furnish the materials and labor for the performance of a contract requiring erection of installation, the materials generally remain the property of the contractor until they are affixed to the building of the owner."

Read Insurance Policies

A majority of operators who hold insurance policies have operated their nonmetallic minerals plants for many years, feeling secure against losses which may result from fire, tornado or robbery, when in fact payment of insurance would have been refused had a loss occurred. It is very important for all plant owners and operators to read their insurance policies carefully. This is so because an insurance company need not pay a loss if the insured building is misdescribed or its exact location is not clearly given in the policy. Also, an insurance company may refuse to pay a loss if the plant owner fails to strictly comply with *any* clause in the policy.

In *White, 91 U. S. 45*, the Supreme Court of the United States stated this law:

"It will not do for a man to enter into an insurance contract, and, when called upon to respond to its obligations, to say that he did not read it or did not know what it contained. If this were permitted, contracts would not be worth the paper on which they are written."

Validity of Patent License

Recently a reader wrote as follows: "We have a legal problem on our hands. We manufacture and sell patented products under a license. We have been compelled to pay exorbitant royalties, so high that we are not able to earn a profit at this time. Can we win a suit filed against us by the patentee to collect overdue royalties by proving that the patentee is overcharging us and violating the anti-trust laws?"

The answer is no. All higher courts agree that a patentee has an absolute monopoly without any likelihood of vio-

For Controlled Material Flow!

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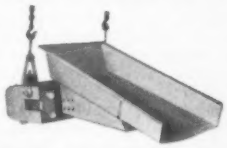
VIBRATORY FEEDERS



Will Handle—

—most all types of bulk materials—from light, fine powders to heavy, coarse lumps—hot or cold—dry or damp.

At—

— variably controlled rates from pounds to hundreds of tons per hour.

To—

—crushers, dryers, ball mills, belt conveyors, etc.

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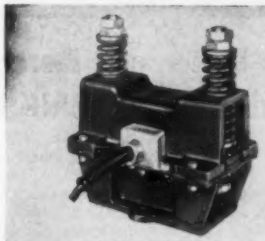

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VIBRATING GRIZZLIES
Both Feed and Scalp With One Unit

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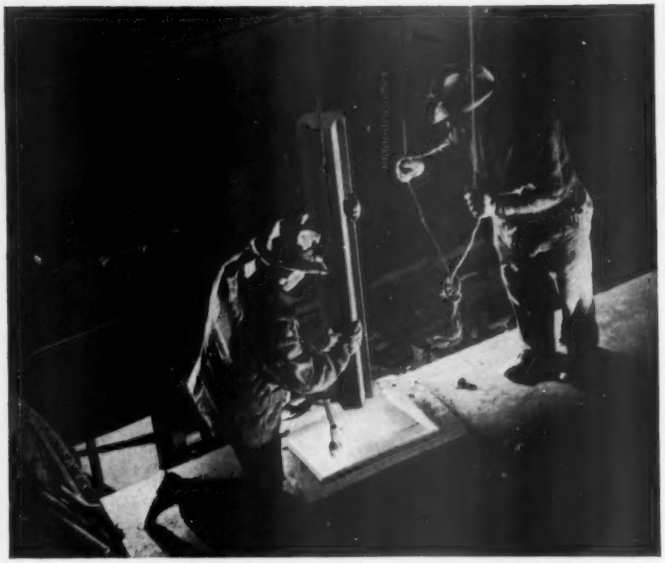
Wet or Dry — Single or Multiple Decks



Better and More Economical Grinding with U·S·S LORAIN ROLLED PLATE LININGS

On all sorts of grinding jobs, Lorain Rolled Plate Linings are helping to increase production, save time, and cut costs. Because the parts are made to accurate size and in easily handled sections, they save hours of labor and reduce mill down-time. And because of the great strength of rolled carbon steel, a plate of reduced thickness can be used—thereby increasing the usable diameter of the mill and boosting output.

As lift bars wear down in service, Lorain Rolled Plate Liners may be restored to full grinding efficiency and the equivalent of a second lining by renewing the lift bars, at only partial lining costs. Where pronounced variance in wear occurs at feed and discharge ends, the liner plates, being made symmetrical and interchangeable, may be reversed to opposite ends of mill to balance wear. Such flexibility and ease in restoring lining efficiency means reduced grinding costs.

U·S·S Lorain Rolled Plate Linings are available through leading mill manufacturers whose names will be furnished upon request.

U·S·S GRINDING BALLS

To make better grinding doubly sure, use U·S·S Grinding Balls. They're specially made, to definite specifications, for the grinding industry. These tough, hard and long-lasting balls are available in all standard sizes from ¾" to 5" in diameter.

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COLUMBIA STEEL COMPANY, SAN FRANCISCO, PACIFIC COAST DISTRIBUTORS
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UNITED STATES STEEL EXPORT COMPANY, NEW YORK
9-1218

USS

LORAIN ROLLED PLATE LININGS AND GRINDING BALLS

UNITED STATES STEEL

lating the anti-trust laws. He can refuse to sell his patented merchandise, or he can sell it at any price he chooses to ask, irrespective of unreasonable profits, or he can sue and recover damages from anyone who without authority either makes, sells or uses the patented device, or he can set the prices at which purchaser must resell his devices.

The fact that a patentee or licensor violates anti-trust laws or overcharges a licensee will not enable the latter to avoid paying royalties which he agreed to pay. See Turner Corporation v. Hartford-Empire Company, 173 Fed. (2d) 49.

Also, see *Products Company v. Champlin Company*, 46 F. (2d) 511. Here the Products Company sued one Champlin to recover royalties under a license agreement. The latter contended that the agreement was illegal because the Products Company was engaged with others in a conspiracy to violate the anti-trust laws by means of a patent pool for the purpose of establishing a monopoly, fixing prices, controlling the market, and that therefore the license agreement being in furtherance of the illegal combination, was invalid. It is interesting to observe that the higher court rejected the argument and in holding that Champlin must pay royalties to Products Company, specified in the contract, said:

"It is apparent that the defendant (Champlin) who voluntarily entered into the contract, must go somewhere back of and outside of the contract to show its illegal nature."

For comparison see *United States v. Line Material Company*, 66 S. Ct. 550. Here it was shown that a manufacturer incorporated a price maintenance provision in its licenses and sale contracts. Also, the manufacturer obtained a license from the owner of another patent on a similar device.

The Supreme Court of the United States held that this arrangement violated the Sherman Act, since it permitted the manufacturer *not only* to fix the prices of products manufactured and sold under its own patent, *but also* gave it control over prices of products embodying the other inventor's patent.

County Taxation Void

Considerable discussion has arisen from time to time over the legal question: If the first owner of real property obtained it from the United States under a patent, can county authorities make a valid tax assessment against the property? According to a recent higher court, the answer is no.

For example, in *Crystal Lime & Cement Company v. Robbins*, 209 Pac. (2d) 739, it was shown that a 145-acre tract of land was patented from the United States many years ago but is still mining property. This question was presented the court: Is this property subject to taxation by the state tax commission rather than by county assessor, and is a tax sale of the tract valid because of the owner's failure to pay taxes assessed by county assessor?

The court answered this question in the negative, saying:

"Even if surface of mining realty is developed into residential property, the state tax commission and not the county assessor must assess the surface value, as well as the mineral or mining value of the subsurface."

Employer Increased Wages

Recently the Supreme Court of the United States was asked to decide whether an employer violates any law by increasing wages of employees at the time when the employer is engaged in negotiations with a representative of a union as to rates of pay.

In *National Labor Relations Board v. Crompton-Highland*, 69 S. Ct. 960, it was shown that a committee of a union was engaged in collective bargaining with a plant owner on rates of pay. Without prior consultation with any member of the bargaining committee, the plant owner announced a general and substantial increase in the rates of pay for his employees.

In subsequent litigation the Supreme Court of the United States held that a plant owner might be engaged in "unfair labor practice" by putting into effect, without prior consultation with the union's bargaining representative, a general pay increase if he did so in bad faith. In other words, this court also held that an employer violates the law by such conduct *only* when testimony shows he did not act in good faith.

Mistake Is Poor Excuse

According to a recent higher court, a contractor cannot avoid liability of failure to fulfill the terms of a valid contract on the excuse that he made a mistake in figuring his bid.

For illustration, in *Harris v. Lillis Roofing Company*, 24 So. (2d) 689, the testimony showed facts as follows: The Lillis Roofing Company made a written offer to furnish and apply a slate roof on a residence for an agreed sum of $300. The roofing company refused to do the job, claiming that it had made a big error when submitting the $300 bid. The building owner then had the roofing work performed by another contractor for the price of $662.

The building owner sued the Lillis Roofing Company for $357, the difference between the bid submitted by the latter and the price paid to the contractor.

The higher court rendered a verdict in favor of the building owner and said that a contractor cannot avoid liability for failure to perform a contract on the ground of a mistake.

Cash Implied

Modern higher courts consistently hold that if a seller does not agree to sell on credit, the law implied *cash* payment. Therefore, the seller retains *legal title* to merchandise not specifically sold on credit until the purchaser pays the contract price.

For example, in *Sykes v. Carmack*, 202 S. W. (2d) 761, a purchaser purchased equipment valued at $1,023 and gave the seller his check. The following day the check was presented to the bank for payment. It was refused because the purchaser had no account in the bank on which it was drawn.

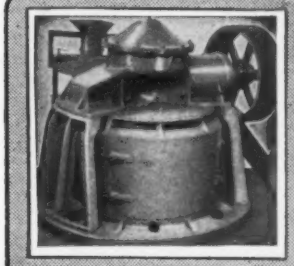
The seller sued the purchaser of the equipment. In holding that the seller could recover possession of the equipment, the court said: ". . . The sale was supposed to be for cash."

Scope of Employment

It is well known that an employee injured "outside the scope of his employment" cannot recover compensation for the injury. However, if an employee is injured while doing something *for the benefit* of the employer, or for the *mutual benefit* of both, an injury is compensable.

In *Linderman v. Cownie*, 13 N. W. (2d) 677, it was shown that a company paid all expenses of certain of its employees who went on a fishing trip. One afternoon four employees were in a motor boat. While they were proceeding to where they intended to fish, the boat sank and an employee was drowned. His dependents sued the corporation for compensation under the State Workmen's Compensation Act. In holding the corporation liable, the higher court said:

"It is undisputed that the company paid all expenses, including meals and transportation in the cars and launch and the company provided the motor boat . . . There was evidence that the fishing trip was a part of the company's business enterprise designed to stimulate its employees to greater efforts."



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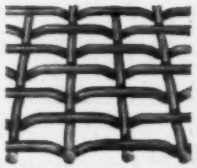

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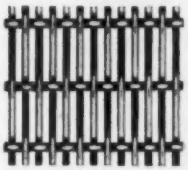

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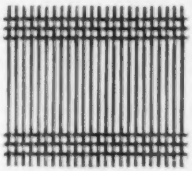

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CENTRAL TERRITORY RAILROADS FREIGHT TRAFFIC COMMITTEE

Docket 87340 (2)—Proposed to establish on limestone, argicultural, unburned, in bulk, in open-top cars, carload minimum weight 90 percent of marked capacity of car, but not less than 120,000 lbs.,

From Spencer, Ind., to (P.R.R.)
Freedom, Worthington, Switz City, Lyons, Bushrod, Linton, Bee Hunter, Marco and Sandborn, Ind. ..... 65 cents net ton
Westphalia, Edwardsport, Bicknell, Bruceville and Vincennes, Ind. ..... 75 cents net ton

From Georgia, Ind., to (B.&O.R.R.)
Prosser, Huron, Willow Valley, Raney Spur, Shoals, Martin, Loogootee, Montgomery, and Washington, Ind. ..... 65 cents net ton
Wheatland, Frichton and Vincennes, Ind. ..... 75 cents net ton

Proposed rates expire December 31, 1950, unless cancelled, changed or extended.

Docket 87357 (1)—Proposed to establish on limestone, ground or pulverized, unburned, carload minimum weight 60,000 lbs., from West Columbus, O., to Deane, Ky., 287 cents net ton, in open cars; 348 cents net ton in closed cars.

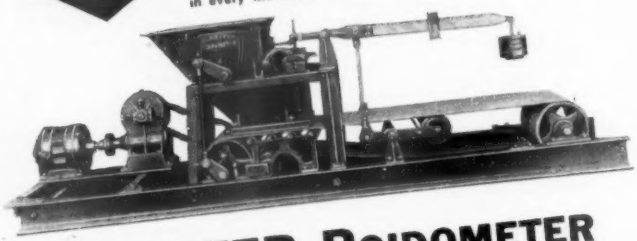
Docket 87360 (2)—Proposed to establish on agricultural limestone (not ground or pulverized) and agricultural limestone screenings, unburned, in bulk, in open-top cars, carload minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply from Carey, O., to Blissfield, O., 189 cents net ton.

Docket 87364 (2)—Proposed to establish a rate of 213 cents net ton on limestone, agricultural, unburned, in bulk, in open-top cars, carload minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply from Durbin, O., to Peru, Ind. (B) Establish on limestone, agricultural or ground, in closed cars, carload minimum 60,000 lbs. from Durbin, O., to Peru, Ind., 305 cents net ton.

GENERAL FREIGHT TRAFFIC COMMITTEE EASTERN RAILROADS

Bulletin G-1214 (Carriers) — Stone, crushed, having value for construction purposes only and not suitable for agri-

THIS SCALE HAS A STEADY JOB
in every industry that handles bulk materials



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Wherever you go, you will find SCHAFFER Poidometers are considered the "key machine" for accurately proportioning pulverized, crushed, or granular materials. These units fulfil the requirements of an all 'round scale, for mixing and blending materials, in addition to feeding, weighing, conveying and proportioning.

Poidometers combine high speed, automatic operation, lasting precision, and continuous, low-cost serviceability.

Available with total weight recorders, and remote controls for showing and changing feed rate.

Our GENERAL CATALOG has complete details.

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New FARREL-BACON CRUSHER
has many advantages

Design features of this 36 x 30 E stone crusher include: (1) Meehanite frame, sectionalized when necessary; (2) removable water cooled bearings; (3) improved design of swing jaw bearing; (4) force-feed oil lubrication, or circulating system if desired; (5) split flywheels; (6) flat or V-belt drive.

Write for further details or engineering help. BA-1

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UNIVERSALS
ARE GIVING AMAZING RESULTS ON THE MOST DIFFICULT SEPARATING ASSIGNMENTS.

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UNIVERSAL VIBRATING SCREEN CO.
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cultural or chemical purposes, in bulk, in open-top cars, carload minimum weight 90 percent of marked capacity of the car used, from Greenfield-Thrifton, O., to Elk View, W. Va., $2.43 per net ton, including ExParte 162-B, 166-C and 168-A increases. Reason: On same basis as rates applying from and to other points.

NEW ENGLAND TERRITORY RAILROADS FREIGHT TRAFFIC COMMITTEE

Docket 443 (1-R)—Proposed to establish commodity rate on crushed stone, minimum weight 70 tons of 2000 lbs., except that when cars of lower capacity are furnished for carrier's convenience, the minimum weight will be the marked capacity of the car, from Lynn, Mass., to Harvard and Littleton, Mass. Present $1.58 net ton. Commodity rate per B.&M. Railroad ICC A 3133. Proposed—90 cents per net ton, to expire with December 31, 1950. Reason: To enable the railroad to receive a haul on this material.

PACIFIC SOUTHCOAST FREIGHT BUREAU DOCKETS

Docket R-423—Proposed to establish on lime, common, including magnesium lime, dehydrated or hydraulic, cake or slacked, carload from Salinas, Calif., to Aristuc, Ariz. Request for rate of 62 cents per hundred-weight, minimum weight 60,000 lbs.

DOCKET AND STATUS REPORT OF PRIOR SOUTHERN FREIGHT ASSOCIATION SUBMITTALS

Docket A 2570 (a)—Proposed to establish on limestone, marble, ground, pulverized, etc., minimum weight 90 percent of marked capacity from Mascot to Nashville, Tenn., 163 cents, closed cars; 151 cents, open cars net ton, not subject to X-162.

FREIGHT TRAFFIC COMMITTEE TRUNK LINE TERRITORY RAILROADS

Docket TL 360—Proposed to establish on limestone, crude, fluxing, foundry or furnace, in bulk, in open-top cars, minimum weight 90 percent of marked capacity of car, etc., from Williams, Pa., to Sheridan, Pa., $1.69 per gross ton, including ExParte 162-B, 166-C and 168-A increases. Reason: Comparable with rates applying from and to other points.

Docket TL M-550 (Shippers)—Proposed to establish on ground limestone, carload minimum weight marked capacity of car, but not less than 100,000 lbs., from Thomasville, Pa., to Gaithersburg, Md., $2.00 per net ton, including ExParte 162-B, 166-C and 168-A increases. Reason: To meet competition of other modes of transportation.

WESTERN TRUNK LINE NEW APPLICATIONS

Docket E-41-1157—It is proposed to establish on stone, crushed, or ground, carloads, from Spencer, S. D., to Centerville, Ia., 12 cents per 100 lbs.

Supplement 1 to E-41-1141—Sand, silica, carload, to Hutchinson, Kan.,

Proposed Rates in cents per ton of 2000 pounds

From	Open Cars	Box Cars
Clayton, Ia.	315	355
Portage, Wis.	359	391
Browntown, Wis.	337	373

4 days' work! now done in 3 with JAEGER "air plus" pressure*

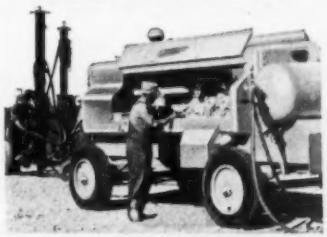
Model 125 — Runs 2 heavy or 3 medium breakers or heavy rock drill at full 90 lbs.

With steady 90 lbs. pressure, instead of 70 lbs., air tools hit enough harder and faster to do 30% to 40% more work in the same number of hours.

Jaeger's new standard ratings (the first increase in the industry since 1932) give you the air you need to run today's big tools at steady 90 lbs. pressure — 75 ft. of air instead of 60 — 125 ft. instead of 105 — 185 ft. instead of 160 — 250 ft. instead of 210 — 365 ft. instead of 315 — 600 ft. instead of 500.

If you're interested in cost-cutting — producing 4 days' work in 3 — put a Jaeger Air Plus on your next job.

Model 600 — Runs 2 big 4" wagon drills at 90 lbs., drilling 30% to 40% more footage than you get with any 500 ft. compressor.



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Manson-Osberg Co.

buys an

Amsco

Dredge Pump

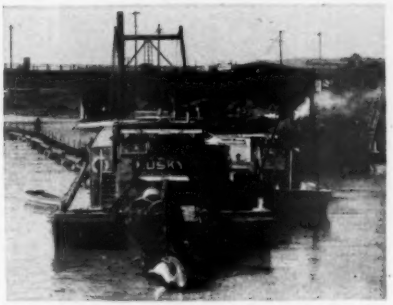
A million and a half yards of material moved in 250 working days. In flood control work on the Puyallup River at Tacoma, Washington, Manson-Osberg Company constructed a new levee and relocated the channel. Using an Amsco 16" dredge pump mounted on their new dredge "Husky," the entire project was completed three months ahead of schedule. Maximum discharge pipe lengths were about 4,000-4,300 feet with a 15' static lift between river level and discharge point.

A special Amsco-designed, 3-vane, "trash type" impeller held to a minimum pump cleanings caused by debris encountered in the river bed.

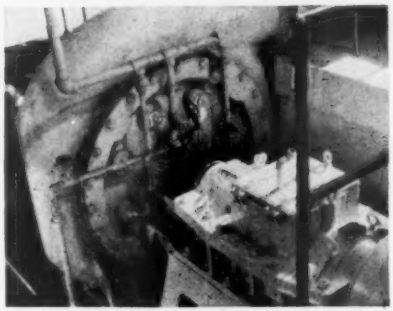
Amsco dredge pumps from 6"-20" are designed for easy maintenance and rugged service.

1. Manganese steel water end parts maintain high efficiency longer.
2. Heavy duty, two direction thrust bearings.
3. Quick, positive impeller adjustment.
4. Remarkably high capacity against high heads.
5. Patented removable block permits replacement of shell casing without disturbing shaft or bearing assembly.

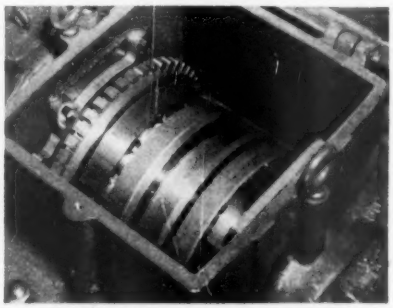
For complete information on Amsco Dredge Pumps and Amsco Dredge Parts write for Bulletin 844-D.



View of Manson-Osberg Co.'s new dredge "Husky." The hull is of steel construction. 29' 6" wide by 102' long. The five foot cutter on the 32' 6" ladder is powered by a 100 H.P. motor. Cutter speed can be varied from 10 to 20 R.P.M.



16" Amsco, Type XHR-CF, Form 44 Dredge Pump . . . Heavy duty construction with Counterflow water seal. Right hand, horizontal top discharge. Powered by 900 H.P., Model ATL-P, Cleveland Diesel Engine. Pump speeds range from 248 R.P.M. to 500 R.P.M. Maximum total dynamic head of 172 ft.



Heavy duty, two direction spherical roller thrust bearing. Bearing running tolerance adjusted by rotating castellated collar shown in photograph. Adequate lubrication assured at all times since bearings run partially immersed in oil.

•

Manganese steel cutterheads, chain elbows, flap valves, dippers, tumblers, dredge buckets, clamshell buckets, orange-peel buckets, dragheads for channel dredging, etc.

•

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Foundries at Chicago Heights, Ill., New Castle, Del., Denver, Colo., Oakland, Calif., Los Angeles, Calif., St. Louis, Mo.
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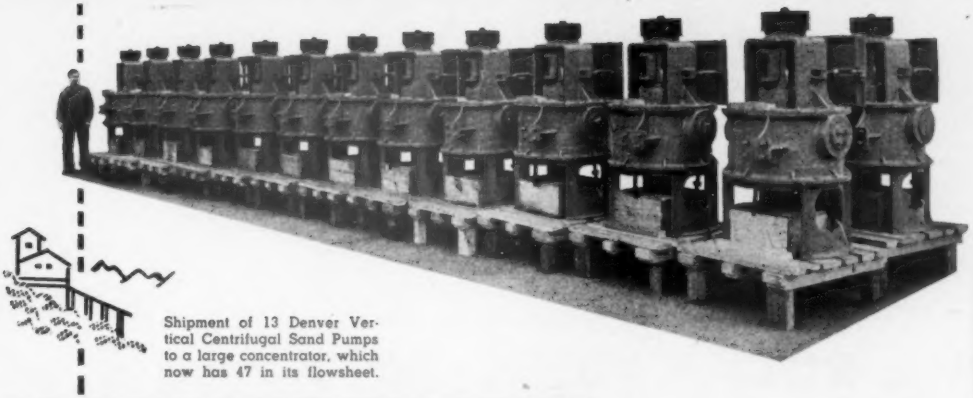
WHY LARGE COMPANIES USE . . .
DENVER Vertical Centrifugal SAND PUMPS



Shipment of 13 Denver Vertical Centrifugal Sand Pumps to a large concentrator, which now has 47 in its flowsheet.

HIGH EFFICIENCY—SELF PRIMING

The constant feed by gravity from the pump bowl to the pump runner results in pumping at maximum efficiency at all times. As long as there is pulp in the bowl, the runner pumps a full load. The pump is self priming due to this gravity flow principle. There is no suction head to cause air locks.

HANDLES COARSE MATERIAL

The downward feed directly on top of the pump runner permits pumping coarse feeds and other difficult-to-handle material without clogging the pump. . . Ideal for pumping flotation concentrates. . . Feed sizes up to ¼" are easily handled.

NO FEED BOX OR INTAKE HEAD REQUIRED

The pump bowl acts as the feed box and no intake head is required . . . the feed flows by gravity into the pump bowl and down onto the runner.

NO PACKING GLAND—NO SEALING WATER

The design of the Denver Vertical Centrifugal Sand Pump eliminates the troublesome packing gland. Maintenance and lost time are reduced as there is no packing to replace. No sealing water is required.

AVAILABLE IN SIX SIZES

The Denver Vertical Centrifugal Sand Pump is made in ¾", 1", 1½" 2", 3", and 4" sizes, providing a wide range of capacities.

As part of a complete line of ore dressing equipment DECO has a pump for every mill pumping problem. Further information will gladly be furnished on request.

DENVER EQUIPMENT 24 HOUR SERVICE COMPANY

FLOTATION ENGINEERS

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That's good news for blasters in quarries, pits, construction jobs, underground workings. On the surface, less noise and vibration means greater freedom from complaints by neighbors. Underground, it means greater *safety*—less danger of damaged or shaken timbers.

Operators are getting far better control of breakage, too—even with wider spacing of drill holes. There is less need for secondary blasting, and blasted rock is handled and milled more economically.

There's more good news of blasters in the ROCKMASTER "16" story! *Sixteen* periods—a wide choice of short or long milli-second delays—give better control over throw, backbreak, and material size. *Sixteen* delay periods fire in just slightly over a half-second—there is less dust and a quicker return to the face.

ROCKMASTER "16" cuts over-all blasting costs — saves time, labor, and dynamite. Blasters everywhere are calling ROCKMASTER "16" the greatest improvement in blasting methods since Atlas introduced milli-second blasting. Write for new booklet showing you where ROCKMASTER "16" fits into *your* operations.

ROCKMASTER "16" TIMINGS

Rockmaster No.	Avg. Time of Each Delay from Zero (milli-seconds)
0 (zero)	0 (inst.)
1	8
2	25
3	50
4	75
5	100
6	125
7	150
8	175
9	200
10	250
11	300
12	350
13	400
14	450
15	500
16	550

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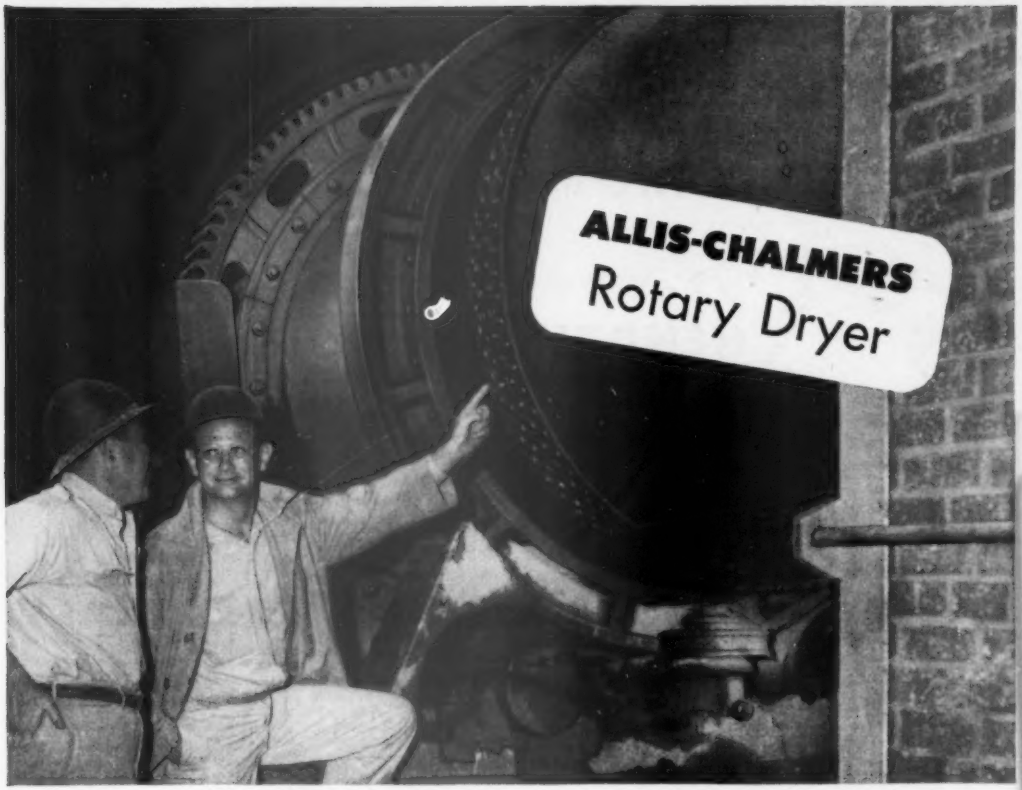

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THIS ROTARY DRYER keeps screening operations at peak performance during the wet season at a large Eastern limestone plant.

Installed 12 years ago to reduce the moisture content of crushed limestone, this direct heat counter-flow dryer handles 40 tons of stone per hour.

Drying is uniform. Internal lifters shower material through a stream of hot drying gases, effectively reducing moisture content of minus 7/32-in. material to optimum conditions for screening. Slowdowns caused by screen cloth blinding when handling damp materials are avoided.

Besides high drying efficiency, you'll get all these features when you specify Allis-Chalmers for rotary dryers:

- **Heavy steel, all-welded shells, Built for heavy-going service.**
- **Large bearings — long bearing life.**
- **Special 20° involute spur gear drive for long, smooth-running gear life.**
- **Built in all practical sizes, with modifications to meet requirements.**

Allis-Chalmers builds both direct and indirect dryers, for either parallel flow or counter flow operation, and combination dryer-coolers, for the effective drying and cooling of a wide variety of materials in a single operation.

The Allis-Chalmers representative in your area may be able to show you how proper drying equipment may fit into your operations profitably. A-2932

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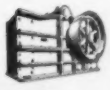
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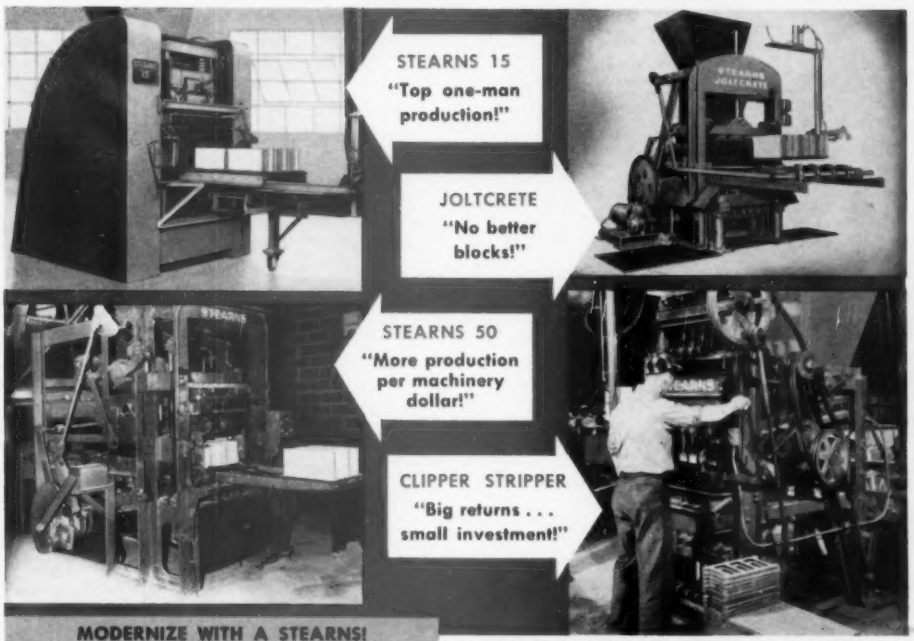

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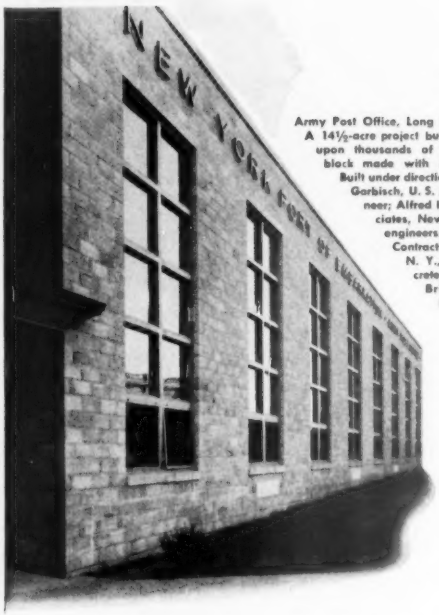
Ten Years Ago . . .

concrete made with Duraplastic cement got its first test. In August, 1939, this test paving was laid in Second Avenue North, Minneapolis. The badly scaled section of roadway in the background was made with regular portland cement. The foreground section, *laid at the same time*, was made with Atlas Duraplastic—the first commercial use of the air-entraining portland cement originated and developed by Universal Atlas.

Both sections, subjected to the severity of ten Minneapolis winters and to heavy applications of de-icing salts, are shown just as they appeared in July, 1949—convincing proof of the durability and lasting good appearance of Duraplastic concrete. Longitudinal structural crack shows some ravelling. Note perfect transverse joint.

Today . . . . Manufacturers rely on DURAPLASTIC* for superior concrete products



Army Post Office, Long Island City, N. Y. A 14½-acre project built with thousands upon thousands of superior concrete block made with Atlas Duraplastic. Built under direction of Col. Edgar W. Garbisch, U. S. Army District Engineer; Alfred Hopkins and Associates, New York, architects-engineers; John A. Johnson Contracting Corp., Brooklyn, N. Y., contractors; concrete block by National Brick Corp., Long Island City, N. Y.

Successful field performance during the past ten years on a variety of paving and structural jobs consistently proved that Atlas Duraplastic made better concrete at no extra cost.

Noting this, more and more manufacturers of concrete products began to use Duraplastic for concrete block, brick, pipe, drain tile, silo staves and other products.

Today, for machine-made products, like the block shown here on this tremendous Army Post Office job, manufacturers find they can use a damper mix—one that's more cohesive, holds together better and feeds easily through machines. Finished units are more compact and exhibit greater resistance to passage and absorption of water. Appearance and face texture are generally improved. Edges and corners are clean-cut and truer.

To provide superior concrete products to meet the construction needs of today and tomorrow, use Atlas Duraplastic. It complies with ASTM and Federal specifications, calls for no unusual changes in procedure and costs no more than regular cement.

OFFICES: Albany, Birmingham, Boston, Chicago, Dayton, Kansas City, Minneapolis, New York, Phila., Pittsburgh, St. Louis, Waco.

*"Duraplastic" is the registered trade mark of the air-entraining portland cement manufactured by Universal Atlas Cement Company.

PG-D-95

ATLAS DURAPLASTIC

TRADE MARK REG. U. A. C. CO.

AIR-ENTRAINING PORTLAND CEMENT

MAKES SUPERIOR CONCRETE PRODUCTS AT NO EXTRA COST

"THE THEATRE GUILD ON THE AIR"—*Sponsored by U. S. Steel Subsidiaries—Sunday Evenings—NBC Network*

NEWS OF CONCRETE MANUFACTURERS

A.C.I.'s 46th Convention Scheduled for Feb. 20-22 At Chicago's Edgewater

Tentative plans for the program of the American Concrete Institute's 46th annual convention, scheduled for February 20-22 at the Edgewater Beach Hotel, Chicago, were announced by the institute's technical activities committee.

Included in the agenda are sessions on inspection, A.C.I. building code studies, reinforced concrete design problems, structural design of concrete pavements, admixtures for concrete, and a panel discussion on problems of the industry.

$75,000 Facilities to Replace Brikcrete's Burned-Out Plant

Fire destroyed the Thornhill, Ont., plant of Brikcrete Associates of Canada Ltd. on November 28, 1949. Although the cause was not definitely ascertained, it is thought that the fire was set off by a short circuit in the wiring.

"A new plant is now being erected," reports J. W. Langs, president of the concern, "practically on the old site; said plant will be 121 feet long by 50 feet wide — one story — and made of Brikcrete, with a composiiton roof, making it practically fireproof. If all goes well, we will be in operation by the 15th of February. A fair value of the new plant and property will be around $75,000.

"Business has been more or less disrupted by the fire, but as we had quite a large stock on hand and we have a plant at Hamilton, Ont., operating for us, we are managing to keep on supplying most of our customers. . . ."

Brikcrete is a private company, whose main stockholders are James France, Harvey Raymond, Vivian Bates, Anne E. McAneney, and Mr. Langs.

Universal Pipe Co. to Open New Plant at Tampa, Fla.

A new concrete pipe plant to service the entire Gulf Coast market has been announced by the Universal Concrete Pipe Company at Tampa, Fla.

Universal, said to be the world's largest manufacturer of concrete sewer pipe and culverts, will operate its 18th plant at the Hooker's Point shipyard, Tampa. Material will be shipped by barge and rail to the entire Gulf market.

All pipe will be 8 ft. in length, and diameters will range up to 84 in. Sections will be cast in a plant established in a renovated hangar-type building which was used during World War II in the manufacture of concrete barges for the Navy. Ten acres of land comprise Universal's new plant grounds.

I. A. Heinzman is in charge of construction and renovation. First project involved the completion of four large material bins for storing sand and gravel.

Autoclave Building Products Group to Meet in Washington

According to a notice released by Carl Miller, secretary-treasurer of the Autoclave Building Products Association (formerly known as the Sand Lime Brick Association), this organization will hold its annual convention at the Hotel Statler in Washington, D. C. on March 2, 3 and 4.

Other officials of the organization include the following: J. W. Van Brunt, Grand Brick Company, Grand Rapids, Mich., president; Leo J. Ryan, Ryan Contracting Company, Ltd., Windsor, Ont., Canada, vice-president; and Elmer R. Coats, Mutual Materials Company, Seattle, Wash., Western executive secretary.

Iredell Jourdan, Pipe Company Founder, Dies at Pasadena

Iredell Jourdan, 75, founder and president of the Jourdan Concrete Pipe Company, died on December 6, 1949, in his Pasadena, Calif., home after an extended illness.

Mr. Jourdan founded the company which bore his name in 1918 in Selma, Calif., and 10 years later opened offices in Fresno. In 1935 the company sold its Selma plant. Two years before his retirement in 1940 Mr. Jourdan moved to Pasadena.

Coming Events

February 6-9, 1950 — Chicago. 30th annual meeting, National Concrete Masonry Association, Hotel Sherman.

February 20-22, 1950 — Chicago. 46th annual convention, American Concrete Institute, Edgewater Hotel.

February 22-25, 1950—San Francisco. 42nd annual convention, American Concrete Pipe Association, Hotel Fairmont.

March 2-4, 1950 — Washington. Annual convention, Autoclave Building Products Association (formerly Sand Lime Brick Association), Hotel Statler.

Lock Joint to Build Plant At Mobile to Make Pipe For $2,000,000 Contract

Erection of a plant covering 12 to 15 acres at Mobile, Ala., has been scheduled by the Lock Joint Pipe Company of East Orange, N. J. The new facilities will be used for the manufacture of concrete-and-steel pipe for Mobile's new industrial water project.

Lock Joint recently was awarded a $2,007,771 contract by the Mobile waterworks board for the construction of the pipeline from Big Creek to a sprawling industrial area near the city.

Wabash Valley R.M.C. Assn. Holds School at Terre Haute

Attendance at the two-day course sponsored by the Wabash Valley Ready Mixed Concrete Association at Terre Haute, Ind., last December numbered 68 representatives of 59 ready-mixed concrete plants. Sessions were held at Rose Polytechnic Institute.

Subjects covered curing compounds and admixtures, testing, fundamentals of quality concrete, effect of variation in sand-gravel content on workability and strength, and effect of water on strength.

Otto Buehner Co. Employees Visit Salt Lake City Buildings

Planned as an experiment in employee-management relations was a tour for 60 employees arranged by the Otto Buehner Company to demonstrate how specific crafts of the workers related to the finished job. The visitors inspected various buildings in the Salt Lake City area which are employing Buehner cast-stone units.

Small groups, each supplied with a guide, visited portions of the buildings in which the men could study in detail the work for which various departments were responsible. There were draftsmen, mold makers, casting crews, finishing crews, and shipping department members.

Progressive producers—an idea for you!

Second Plant to Be Opened By S. E. Concrete Products

Plans for the opening of a new concrete tile plant at Fairmont, N. C., by the Southeastern Concrete Products Company of Cayce, S. C., were announced recently by the firm when officials received a deed to land on Highway 130, east of Fairmont's town limits.

Construction of a plant on this tract was begun late in December, and it was announced that production will begin in February. Company spokesmen stated that about 90 persons will be employed when the plant is in full production.

Over 100 Attend 4th Short Course On Aggregates and Concrete

The fourth annual Short Course on Aggregates and Concrete was held at the University of Maryland on November 14-19, 1949. The course, sponsored jointly by the university, the National Sand and Gravel Association, and the National Ready Mixed Concrete Association, has been held annually for the last four years. Its purpose is to instruct representatives of the two industries in the technology of aggregates and concrete. Enrollment has increased from 31 students in 1946, when the first course was held, to 102 attending in 1949. Although the greater proportion of students last year consisted of employees of member companies, a considerable number represented users of industry products or agencies directly interested in the use or testing of aggregates and concrete. Organizations represented, other than member companies of one or the other of the two associations, included the following: The Department of Highways of the Province of Ontario; District of Columbia Department of Highways; U. S. Bureau of Standards; City of Rochester Testing Laboratory; Delaware State Highway Department Testing Laboratory; Alabama State Highway Department; Southern Railways Company; U. S. Corps of Engineers; North Carolina State Highway and Public Works Commission; and the Pittsburgh Testing Laboratory.

Sessions consisted of lectures, demonstrations, calculation periods and class discussions. Each student was supplied with a number of publications for further study and for use in class work.

With two exceptions all instruction was carried out at the University by the Association's staff. On November 17 the group visited the laboratories of the Bureau of Public Roads where lectures and demonstrations of tests of aggregates, concrete, bitumens and bituminous mixtures were presented. On the last afternoon, D. O. Woolf, senior materials engineer, Physical Research Branch, Bureau of Public Roads, presented a paper on *Identification of Rock Types* in which he discussed various visual methods for analyzing geologic formations.

As in past years, the students were given a final examination. Although the final papers were not graded, they were corrected and returned to the student along with such comments as seemed necessary to clear up any haziness on the subject. A certificate of attendance signed by Dr. H. C. Byrd, president of the university, and S. S. Steinberg, dean of the College of Engineering, was given to each student.

Washington Brick & Lime Co. Making Septic Tank Units

Near Spokane, Wash., the Washington Brick and Lime Company recently began producing a new type of septic tank unit designed by S. H. Excell, Spokane County's health department chief.

The new 4-in. inlet and outlet fittings made at the company's Dishman, Wash., plant are designed to keep the tank liquid level, to prevent scouring action of sewage, and to retain sewage longer to permit more thorough decomposition. The inlet fitting is 23 inches long; the outlet fitting, 31 inches long.

This Topeka Concern Gets In On the Ground Floor

Looking for a chance to do some one a good turn—or maybe more than just some *one*? If a civic building project needs a boost in your town, how about a contribution? In Topeka, Kan., the Victory Sand and Stone Company donated concrete for the floors of the new recreational rooms for nurses of the Vail Hospital.

When the hospital auxiliary decided that the girls ought to have such facilities, they made it known that help from the local building industries would be appreciated. Victory Sand & Stone concrete will be at the bottom of the project, and other firms will contribute materials at cost and/or labor to put the rooms in A-1 condition in the unfinished basement of the nurses' home.

Executive Considers Future Of Concrete Roof Tile Good

Throughout the country there is a great deal of interest in permanent roofing, particularly concrete roofing tile, according to Frank J. Hart, president of the Perma-Tile Concrete Products Co., San Bernardino, Calif.

Mr. Hart recently returned from a trip through the East and South in the interest of the Perma-Tiler, a semi-automatic machine which his company manufactures. He reports a number of sales of the equipment, including a machine for Henry Mayeux of Alexandria, La. This machine has already been shipped and is being installed in a new roofing-tile plant erected by Mr. Mayeux in Alexandria.

Charles E. Richardson Sr., 76, who had been sales manager of the Illinois-Wisconsin Concrete Pipe Company of Chicago for 29 years, died on September 28 at a Milwaukee hospital after a protracted illness.

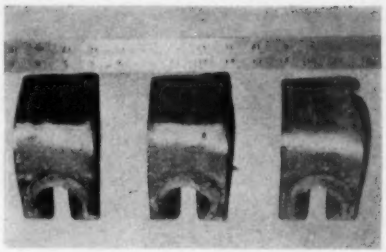
George A. Meihaus, general manager of the Texcrete Company of Dallas and Fort Worth, Tex., has been elected vice-president of the recently formed Texas Lightweight Masonry Association.

● Here are the trophies awarded by Pit and Quarry to the winners of the 1948-1949 safety contest of the National Ready Mixed Concrete Association at N.R.M.C.A.'s annual convention in Chicago. The plaque on the left was won by Kuert Concrete, Inc., South Bend, Ind., for placing first in Class A. At the right is the trophy presented to Modahl & Scott, Inc., Bloomington, Ill., winning plant in Class B.

Hardfacing Trowler Shoes On Pipe-Forming Machine Saves Wear, Maintenance

Trowler shoes, the steel blades used in "troweling" or forming the inside surface of concrete pipe, are among the shortest-lived parts in any industrial use. Rotating constantly and exerting enough pressure to squeeze moisture out of "dry-mix" concrete, they are subject to extreme abrasion. In the experience of Fowler & Meyers, concrete pipe makers of Somis, Calif., trowler shoes had to be replaced every three hours.

As a test for resistance to wear, two shoes were hardfaced with Amsco Tube "Tungsite" 30-40, a tungsten carbide-type welding rod, while other shoes on the machine were left unfaced. The result of the test is shown in the above photograph. The two shoes at the left were coated, while the one on the right was not. The uncoated shoe is so badly worn that it must be discarded, while the other two may be rebuilt when worn, to original dimensions and returned to service. Shoes hardfaced with tungsten carbide, as these have been, will last a full 8-hour shift, as compared with the unfaced shoes mentioned above which had to be replaced every three hours. They can be repeatedly rebuilt and kept in service. The saving in replacement parts is considerably greater than the cost of hardfacing; and, in addition, there is saving in production time due to less frequent replacement of shoes.



Amsco Tube Tungsite, 30-40 mesh, the welding rod used, is also used to combat wear on hundreds of widely scattered industrial applications such as crawler parts, pulverizer hammers, cane knives, dipper teeth and rotary drill bits . . . . extending the service life of parts many times. Tube Tungsite is a tungsten carbide rod or electrode with carbide particles encased in a tube of mild steel. In welding, the tube casing melts to form a matrix for the carbide particles, creating an extremely wear-resistant surface. Tube Tungsite and "Tungrod" range from 5-8 mesh to 40-125 mesh. Carbide inserts in a wide range of shapes and sizes are also available.

Pumice Block Plant Built At Calipatria by Superlite

Superlite Corporation, Phoenix, Ariz., is currently building a pumice block plant at Calipatria, Calif., which is expected to be a new source of supply for the Imperial Valley building industry.

Approximately 500 cars of pumice have been shipped by Superlite from the firm's Obsidian Butte deposit northwest of Calipatria. To the present time the total output has been transported to Phoenix. Products of the quarry include ⅛- to ¾-in. screened pumice aggregate. Large boulders up to 2 ft. in diameter are shipped for Phoenix for processing into abrasive products. Plant capacity is 50 t.p.h.

An Artist with a Trowel Paints Concrete Frescoes

Sand sculpture we've seen, and various kinds of curious and so-called artistic shell and pebble work is familiar to most of us. But for the first time to date we have encountered an artist whose medium is concrete.

Quoting a Washington, D. C., source: "For a brush he uses a trowel, his canvas is concrete, and his palette is any old square of pavement." In bringing to the field a new technique, Artist Pietro Lazzari employs "fresco mosaic," a term he has had copyrighted. Most people would call him a muralist.

If you were watching him prepare one of his "paintings," you would see him do the following things in this order: smear concrete on a frame covered with metal lath screen to make the "canvas"; apply the design—usually a horse—with colored concrete; outline the design and add details, usually in darker colors.

Florida Concrete Pipe Co. Making Variety of Pipe Sizes

Production of concrete pipe has started at the new plant of the Florida Concrete Pipe Company, Ocala, Fla., to supply engineers, contractors and the general public in northern and central Florida.

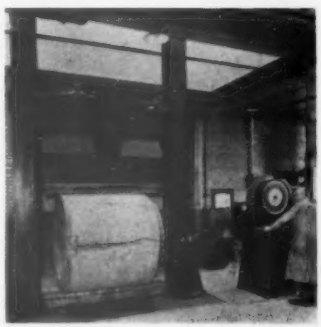
The new firm is making concrete pipe, both plain and reinforced, in sizes that range from 6 inches to 120 inches in diameter, according to I. Heintzman, production supervisor.

Johnny Harris is the sales representative for the firm, which will make pipe for sewers, culverts, driveways and farm drainage for users as far south as Orlando and throughout northern Florida. Approximately 35 persons will be employed.

Pipe Testing Machine Installed In Brooklyn Laboratory

A 42-in. diameter, 48-in. length of concrete pipe, which is shown in this Baldwin sewer pipe testing machine, cracked under a load of 52,000 lbs. It was recently installed in the Brooklyn (N. Y.) Borough testing laboratory. For Borough acceptance, according to Chief Chemist Frank H. Biele (at the control and indicator cabinet), this size of pipe must withstand a total load of 12,000 lbs. or 3200 lb. lineal foot.

In order to accommodate the machine in the laboratory, it was installed under a skylight where there is sufficient height for the frame. Brooklyn's machine, designed and built by The Baldwin Locomotive Works, has a capacity of 100,000 lbs. and two other full-scale ranges of 20,000 lbs. and 5000 lbs. The machine consists of a structural steel frame approximately 16 ft. high with 6 ft. 2 in. between columns and base 5 ft. 6 in. from front to back. Pipe as large as 9 ft. in diameter can be tested.



• It required 52,000 lbs. of pressure to crack this 42-in. pipe.

This Lusty Oregon Infant Is Growing — But Fast!

One of the "infant industries" of Albany, Ore., the Valley Concrete Pipe Company, launched only last summer, is already making rapid strides to aid in the promotion of improved sanitation in the rural area surrounding the plant.

Products of the newly-established business include septic tanks, concrete tile, pier blocks, and colored stepping stones. Variations of pipe include culvert and sewer tile, all of standard sizes, well curbing, and drain tile. Major emphasis, however, is upon 500-gallon septic tanks, which are made to meet scientific specifications. Each tank is composed of four units, plus a cover. Presently the tank sections are 39 in. in diameter; but the firm will later turn out tile in 54-, 60-, 66-, and 72-in. diameter sizes.

The plant can produce from 700 to 1,500 ft. of tile per day, depending upon the size. A staff of 15 men is on the job. Heading the business are A. J. McMillan, president, his son, Donald A., and his son-in-law, Robert Hartley.

Charles R. Haggerty, a member of the Perma-Stone Construction Company's sales staff, died at Orange, N. J., on December 14, 1949, at the age of 46 years. Mr. Haggerty suffered a heart attack while riding on a bus and died a few minutes after arriving at a local hospital. Previously to December 1 he had been vice-president of Kindermann & Haggerty, artificial stone manufacturers, Larchmont, N. Y.

Diversification Strengthens Competitive Position of Products Concern

By E. J. BRUNENKANT

ANY construction job started within a 50-mile radius of Medford, Minn., is very likely to result in an order for the Owatonna Cement Tile Company. This enviable competitive position is achieved by virtue of four well-integrated operations that produce four different products—concrete block, concrete tile, ready-mixed concrete, and sand and gravel.

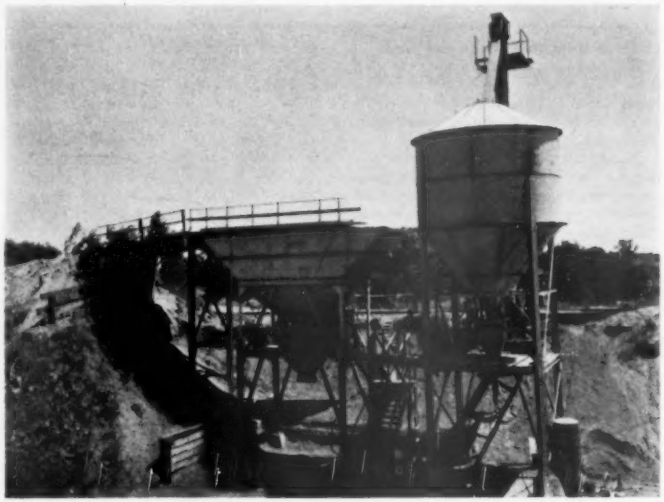
The Owatonna Cement Tile Co. was started on a modest basis nearly 30 years ago by E. W. and L. S. Hammel. Only concrete tile were then produced commercially, although sufficient sand for the tile plant was hand-screened from a minor deposit in Owatonna. The aggregate deposit soon proved inadequate to fill the needs of the expanding tile business, and consequently a 200-acre tract of rich sand and gravel land near Medford, Minn., was acquired. With excess sand and gravel available above that needed by the tile plant, the two brothers branched out into the aggregate business. Later a concrete block plant was built on the Medford acreage and, very recently, a modern ready-mixed concrete plant was erected on the same propetry. The ready-mix installation is operated by an interlocking organization known as Steele-Rice Ready Mixed Concrete, Inc.

Sand and Gravel Production—The aggregate plant produces about 40 cu. yds. per hour of washed sand and gravel. Of the plant's total sand and gravel production, about 20 percent goes to the block plant, about 20 percent to the ready-mix, approximately 10 percent to tile plant, and the remaining 50 percent to other users of aggregate.

The gravel deposit averages about 20 ft. in depth, of which 15 ft. is recovered with an American crane fitted with a ¾-cu. yd. dragline bucket. No attempt has been made to take out the bottom 5 ft., since this would bring the pit floor below the water table, necessitating dredge recovery. Although there is good gravel below 20 ft. it is covered with a 2-ft.-thick seam of clay, a factor which militates against the use of a dredge.

Practically no blasting is required to loosen the bank. Since the deposit is also remarkably free of clay or other undesirable inclusions, digging and loading is simple and economical. The pit run material is hauled from the loading crane in two 4-cu. yd. International rear-dump trucks which dump onto a surge pile built up in the abandoned worked-out end of the pit nearest the plant. Plant feed is reclaimed from the surge pile with a slackline cable and ½-cu. yd. bucket. The double-drum hoist that operates the slackline cable is turned by a 40-hp. motor equipped with a G.E. compensator which effects a lower starting load, thereby preventing needless blowing of fuses.

The stone is first passed over a small scalping screen in closed circuit with a jaw crusher. Minus 1½-in. stone by-passes the crusher



• A general view of the modern two-stop ready-mixed concrete installation at the Owatonna Cement Tile Company's plant, Owatonna, Minn.

• The gravel deposit averages about 20 ft. in depth, of which 15 ft. is recovered with a crane fitted with a ¾-cu. yd. dragline bucket.

and is conveyed to a feed box, where it is mixed with water introduced at the rate of 250 g.p.m. and washed over a 4- by 8-ft. Tyler Niagara 2½-deck vibrating screen. Here four sizes of aggregate are separated: sand, pea gravel, ¾-in. and 1½-in. The sand, ¾-in., and 1½-in. are given additional scrubbing in Eagle Iron Works screw washers.

Four bins provide a combined storage capacity of 480 cu. yds. Overflow of the aggregate bins is drawn off in trucks and stockpiled on the ground or hauled to the respective products plants. The sand bin is equipped with an ingenious device which automatically shifts the flow of sand from the bin to an outside storage pile when the bin is full.

Ready-Mixed Concrete—The ready-mixed concrete plant consists of a modern 2-stop Blaw Knox installation. A ramp from the ground to the top of the 4-compartment bin permits trucks to unload sand and gravel directly into the proper bin section. The open top side of the bin is bridged with rail ties so that the trucks can back out to the proper compartment.

A 1000-bbl. steel silo provides adequate storage space for bulk cement—a wise storage provision that permits the fullest use of bulk car cement shipments. Standard unloading procedures, screw conveyor to bucket elevator, are used here. Normally air entrainment in the concrete is provided by using a cement with an interground admixture. The cement is aerated to insure free flow in the chute.

Aggregates are proportioned in a 4-cu. yd., 4-beam weigh batcher. Cement is batched on a 2-beam scale. The company moves its concrete from the plant to the job in International K-8 trucks mounting Blaw Knox 2½-cu. yd. mixers.

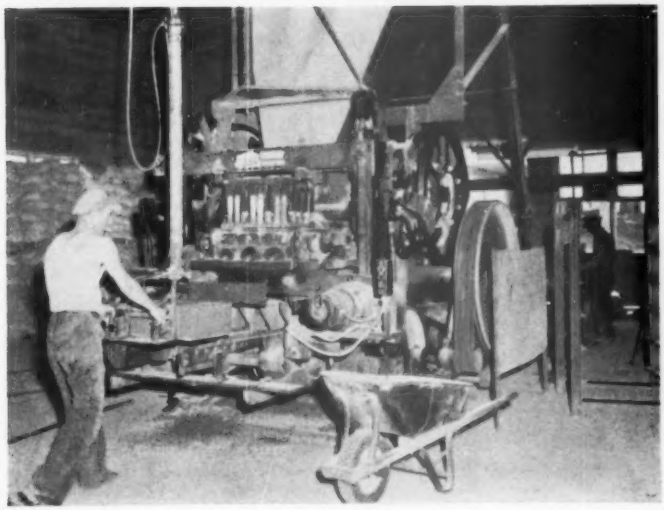
Concrete Blocks—Aggregates for block production are stored in a 2-compartment steel bin. Trucks discharge directly into the bin from a dirt ramp built for this purpose, thereby eliminating the cost of installing and operating a standard conveying system such as those nor-

(*Continued on page* 122)

• Right: The sand, ¾-in., and 1½-in. material are scrubbed in screw washers.

• Aggregates for the block plant are proportioned by volume in a traveling batcher suspended from two overhead rails.

• Below: A view of the block machine operated by Owatonna Cement Tile Co. At the left, note the system of palletization of bagged cement.



• Below: All units are yard-cured for at least 28 days. Blocks are arranged in 60-unit cubes and stacked with this fork lift truck.

Wisconsin Products Men Hold Two-Day Meeting at Milwaukee

another ON THE SPOT report

CLOSE to 200 producers of concrete masonry units gathered at the Plankinton Hotel in Milwaukee, Wis., on January 19 and 20 for the 30th annual convention of the Wisconsin Concrete Products Association. The exceptionally well bal-

By WILLIAM M. AVERY

anced program included discussions of a number of the industry's technical problems, and addresses on such varied topics as pre-cast floor filler block systems, foreman education for safety, proper use of the telephone in business, and Wisconsin's milk house construction program.

Harry Sorenson of the Waylite Concrete Masonry Co., Racine, was elected president of the association, succeeding William P. Siegert, Economy Block Co., Wauwatosa. Other officers elected at the two-day meeting include Emil Fehr, first vice-president, William F. Schneider, treasurer, Paul Jensen, second vice-president, and A. W. Devos, secretary. In addition to these gentlemen, the following make up the association's board of directors: Herbert Laucks of Madison, William P. Siegert of Wauwatosa, Ellis Jensen of Janesville, George Andrews of Fond du Lac, and Edward Olson of Oshkosh.

In his final address as president of the association Mr. Siegert suggested several policies which producers should adopt in order to maintain the brisk demand they have enjoyed for several years. He urged all the members to adopt the policy of holding units at least two weeks before shipping. In this connection he stated that some orders were lost in 1949 due to the relatively poor showing of the green blocks which have been sold by many producers during the past few years.

• Newly-elected officers of W.C.P.A.—Harry Sorenson, Racine, president; Herbert Laucks, Madison, director; Emil Fehr, Eau Claire, first vice-president; W. F. Schneider, Milwaukee, treasurer; Paul Jensen, Racine, second vice-president; A. W. Devos, Milwaukee, secretary; W. P. Siegert, Wauwatosa, director and past president.

Mr. Siegert also suggested that producers launch a determined campaign to sell masonry units for basement construction in order to check the recent trend toward the elimination of basements in residential construction. Among the persuasive selling points that should be used, he said, is the great increase in convenience and livability which a basement imparts to any home. He pointed out that on the average the many advantages of having a basement under a home can be had at an additional cost of about $1000, as compared with an equivalent unit with a basement.

Mr. Siegert also suggested that the industry give more thought to the farm market for concrete products. He specifically proposed that steps be taken to make farmers as familiar with the operation of a trowel as they are with the use of the hammer and saw. If this can be accomplished, he said in conclusion, there is no doubt at all that sales to the farm market would increase considerably.

Another feature of the opening session was an excellent discussion of pre-cast floor filler block systems, presented by R. E. Copeland, director of engineering for the National Concrete Masonry Association. Since Mr. Copeland's talk was essentially the same as his address at the recent meeting in Atlanta of the Southeastern Division of N. C. M. A., readers may refer to our detailed report which appeared in the January issue of THE CONCRETE MANUFACTURER.

One entire session of the Milwaukee meeting consisted of an open forum during which producers fired questions at a three-man panel of experts. The panel included B. Brevik, engineer, Portland Cement Association, who served as chairman, Robert Burmeister, engineer of the City of Milwaukee Testing Laboratory, and O. Neil Olson, professor of engineering, Marquette Univ.

The problem of shrinkage was discussed at considerable length. In the opinion of the experts much can be gained by adequate curing procedures and under-cover storage of masonry units up until the time they are placed in the wall. Among the factors other than curing which affect the problem, mention was made of thermal changes, drying during hydration, and changes induced by moisture. It was also pointed out that architects and designers can do a great deal to minimize the problem of cracking due to shrinkage.

(*Continued on page 122*)

• This panel of experts took the barrage of questions from an interested audience during an open forum—O. Neil Olson, Marquette University; Berry Brevik, Portland Cement Association, Appleton; and Robert Burmeister, City of Milwaukee Testing Laboratory.

CONCRETE PIPE IN 1949

Production Probably Hit All Time High of 8,000,000 Tons -- Outlook Is for Continued High Output in 1950

FROM all available indications the concrete pipe industry produced close to 8,000,000 tons of all sizes of concrete pipe in 1949, to set a new all-time high record. In reaching a new productive peak

By WILLIAM M. AVERY

for the third consecutive year, the industry also maintained the steady 1,000,000-tons-per-year gain in output which it has enjoyed each year since the end of World War II.

The pipe industry's 1949 output was about a third greater than the 6,000,000 tons produced in the peak war construction year, 1942 (a record up to that time), and considerably more than double the industry's total production in 1944, which marked the low point of the war years. Late in 1948 leaders of the industry thought there were signs that the steep climb of the production curve had about run its course, and that output would level off at (or slightly above) the 1948 rate of approximately 7,000,000 tons. This possibility was pointed out in our review and forecast of a year ago, but we hedged somewhat by predicting that there might be a significant gain in 1949 if the supply situations in cement and steel eased sufficiently.

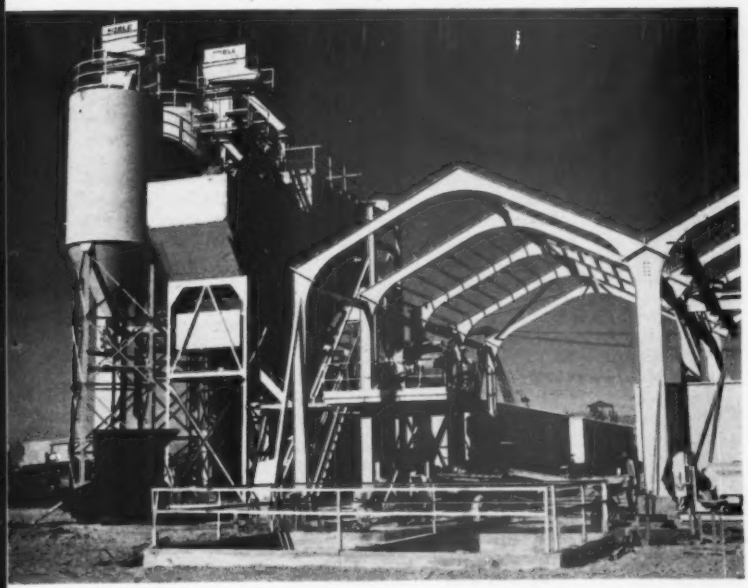
Probably the most important factor in the continued rise of the production curve in 1949 was the inroads which concrete pipe made on clay tile and cast iron pipe. Gains at the expense of these two competitive materials were in turn largely the result of the long-term improvement in the quality of concrete pipe, a trend which has been maintained repeatedly in these pages. The excellent quality of the product which the concrete pipe industry turned out in 1949, coupled with the price advantage which the industry has always held, gave it an excellent, almost unassailable position in competitive selling.

In the early weeks of 1950 it seems most unlikely that the industry's output for the new year will be appreciably less than it was in 1949. None of the factors that could produce a slump seem to be present. An expected drop in private spending should be more than offset, so far as the concrete pipe industry is concerned, by the predicted 10 percent increase in public spending for construction. In addition, the industry has the assurance that any serious lag in private spending for construction will be rather quickly balanced by increases in the public domain, a development that would almost certainly bring about an increase in the total demand for concrete pipe. This would at least be in accord with the industry's traditional habit of languishing somewhat when the over-all national economy is running wide open, and perking up when most other lines of activity slow down.

No reliable figures are at present available to show the distribution of the industry's 1949 output by types or major uses. In all probability the approximately 14 percent gain in production over 1948 was pretty uniformly among the major types of concrete pipe. The average diameter undoubtedly increased somewhat during the year, largely because of increased use in both the East and the West of pipe up to 10 ft. in diameter for highway culverts, storm sewers and drains. There was also a marked increase in the maximum diameter of precast concrete pipe. At least one California producer turned out 15-ft. diameter sections of pipe, believed to be the largest ever precast, requiring new methods in forming, pouring, handling and placing.

There was also a trend toward longer lengths of pipe in compliance with the demand in the field. At least one multiple-plant operator was producing machine-made pipe in lengths up to 10 and 12 ft.

The year just closed saw concrete pressure pipe make tremendous advances in the drinking water and irrigation supply fields. Among important projects completed during the year were the 40-mile line, into Saginaw, Mich., and the San Diego Aqueduct. The last section of the Salt Lake City line was brought close to completion during the year, and work was started on a new 10-mile line into Denver. Up to 90-in. in diameter most of the pressure tonnage consisted of spun pipe, whereas over that limit cast and vibrated pipe seemed to predominate. Several new centrifugal plants



• The American Pipe & Construction Company's plant near Mecca, Calif., showing two batch plants, spinning bed for centrifugally-made pipe (foreground), and curing boxes (foreground).

were established in 1949, additional evidence of the growing importance of the pressure field of application.

Overall plant capacity probably increased in 1949 by as much as 15 to 20 percent. Most of this increase took place not only within existing companies, but within existing plants as well, although a few new plants commenced operations during the year. By and large the concrete pipe industry in the United States seems to have stabilized at around 150 companies, operating close to 350 plants. The calibre of the companies and the geographical distribution of the plants are such that present expansion needs can easily be handled by the experienced operators already established in the field.

The year just closed was marked not only by great activity, but by measurable accomplishments in the field of concrete pipe research. Work on an important hydraulic research project at St. Anthony Falls Hydraulic Laboratory was completed late in the year, and the final report on findings was expected to change very materially the values of Manning's "n". Coefficients derived from the full-scale tests at St. Anthony Falls Laboratory are expected to be of far-reaching importance to the concrete pipe industry. The project was largely financed by the American Concrete Pipe Association, assisted by the Portland Cement Association and the Highway Research Board. The Army is expected to pick up the experiments and carry them on to include pipe with a maximum diameter of 72 in.

During 1949 A.C.P.A. and the Public Roads Administration agreed on a joint research program on loads on underground conduits. This will be a long-range program, but it is hoped to make a start at Iowa State College in 1950. Another project just getting under way is a complete review of concrete pipe specifications by Committee C-13 of the American Society for Testing Materials. This major undertaking will involve several years' work.

Diversification at Owatonna

(*From page* 119)

mally used for charging overhead storage compartments.

The aggregates are proportioned by volume in a traveling batcher suspended from two overhead rails. Water and cement are added at the 50-cu. ft. Besser mixer. At the present time bagged cement is used, although a bulk handling system will be installed in the future. The cloth cement bags are loaded on special wooden pallets, 50 to a pallet, for easy handling and storing.

The Besser Vibrapac used in this plant has a rated capacity of 600 standard 8- by 8- by 16-in. blocks, or equivalents, per minute. Green units are offborne to steel racks which will accommodate 72 standard 8-in. units. Normally, however, only 60 blocks are placed on a rack since the blocks are yard-cured and stored in 60-unit cubes. Sixty-block cubes were chosen over cubes of other sizes because the former size loads conveniently and rides easily on flatbed trucks.

Two Erickson fork lift trucks are employed in the plant: one transferring green units from the block machine to the curing room, and the other in the yard stacking cubes and loading out trucks.

No steam curing is employed in this plant. After the curing room is loaded, the green blocks are sprinkled with water and left in the room for 24 hours. During the summer months, the heat liberated by the setting cement will raise the ambient temperature in the room to 120 deg. F. After the initial set all units are yard-cured for a minimum period of 28 days.

The company ships all of its blocks by contract haulers. Average one-way hauls range about 40 miles.

Besides the two senior partners, E. W. and L. S. Hammel, other Hammels interested in the Owatonna Cement Tile Co. include Donald, L. F., and C. E.

Wisc. Concrete Products Assn.

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Several producers expressed the opinion that mortar plays a more important role in shrinkage cracking than has generally been recognized. The experts, however, took exception to the notion that the problem can be solved by incorporating weaker mortar joints into the walls. In their view it is virtually impossible with materials now available to build walls entirely free of cracks.

There was also a brief discussion by members of the panel on the use of color in concrete; and the following points were made: that reds, pinks, and yellows can now be achieved with entire success by the use of iron oxides; that an excellent green color can be obtained by the use of chromium oxide, but that the material is at present too costly for most types of work; that the best mineral pigments will retain their color in concrete for long periods of time; and that the use of such materials seems to have no significant effect on the strength of concrete.

Harold Spaight, president of the national association, spoke briefly at the final session. He said that the industry must be alert if it is to hold the tremendous gains it has made in recent years. As one important means of furthering the interests of the entire concrete masonry industry, he urged all producers to join the national association and to participate in its varied activities. In no other way, Mr. Spaight said, can so many tangible benefits be secured by so small an investment.

This view was reaffirmed by E. W. Dienhart, executive secretary of N.C.M.A., who also paid high tribute to the loyal support which Wisconsin producers have long given to the national organization. Mr. Dienhart then went on to itemize some of the activities of N.C.M.A., laying particular stress on its vigorous program in the field of merchandising. He pointed out that the block industry's tremendous gains in recent years impose heavy responsibilities on all producers, and that these responsibilities must be shouldered by all if the gains are to be held.

W. L. Roper, well-known field engineer for the P.C.A., spoke briefly about Wisconsin's milk house construction program and the opportunity it affords to producers of concrete masonry units. In the next 2 years and 10 months Mr. Roper said, some 75,000 milk houses will be erected on farms throughout the state. If all were built of concrete block it would mean a market for 50,000,000 8-in. equivalents. He then discussed the methods which producers should employ to assure that a large share of these houses will be built of concrete block, and he distributed among those present several P.C.A. leaflets which can be used with good effect among farmer prospects.

An excellent talk on foreman education for safety was presented by August Sigurdson of the Wisconsin Industrial Commission. According to this speaker the foreman is the crux of any safety program, for it is never enough just to train workmen how to work safely. Foremen must be trained to follow up to see that safe working procedures are actually used on the job, and that top management must also be 100 percent sold on the importance of such a program.

The final speaker on the program

(*Continued on page* 124)

If You Lost Money in '49— Get a Tax Refund

IN some ways, 1949 was a tough year. Things suddenly got very competitive again, and in the switchover from a seller's market to a buyer's market, a lot of businesses undoubtedly got hurt.

But if you ended up this competitive year with a net business

By BETTY LEE GOUGH

loss, there is still one ray of hope, and a fairly substantial one at that. You can get back some of the money you paid to Uncle Sam in taxes on the prosperous operations of 1948 and 1947. Uncle isn't as hard-hearted a guy as he usually seems when the time comes for shelling out income taxes. He is inclined to be quite reasonable. He recognizes the fact that an unprosperous year may be the build-up for a big year in the next 12 months (or, as happened to many producers this year, the switchover from boom prosperity to normal prosperity). So if you sadly entered the final figures on your profit and loss statement with red ink—you can still get some long green out of the deal.

The procedure for receiving a tax refund on previous years is not very well known. But the law provides for it. Here is what the United States Department of Commerce has to say on the subject:

"The federal income tax law permits a business enterprise to reduce its tax bill by using an operating loss in one year as an offset to income in the two immediately preceding and two succeeding years. If you have a large loss in a given year, you may be able completely to wipe out your income tax in these four years in addition to the loss year. These provisions of the law have been of special interest in recent years because they have allowed an established business to balance, taxwise, reconversion-year losses against war-year profits through a loss carry-back and tax adjustment. They also permit a new postwar business to carry forward losses, which are incurred in the early years of operation, to obtain a tax cut in the first years of success. For the carry-back years you can obtain a credit on current unpaid taxes or a refund, depending on your own tax payment situation. In effect these provisions mean that your taxable income is averaged over a five-year period and that the government is sharing your operating losses as well as your income. It is vitally important to small enterprises to be able to balance a current loss against past and future income in this manner. These firms are not likely to have the reserves needed to carry them over bad years. Even one loss year could easily be fatal.

"The loss carry-back and carry-over provisions of the income tax law apply in the same general way to corporations and unincorporated firms, but there is a different treatment of the two groups for certain specific items in the tax return. In the case of corporations, the carry-back may result in a credit against wartime excess profits taxes."

The procedures for unincorporated businesses (individual ownerships and partnerships) are not simple, but they are not as complicated as those of corporations. Since the services of a tax attorney or an accountant are necessary in corporation returns anyway, we'll look at the tax refund problem of the individual owner of a concrete company, or the partners who control one.

There are three things that you must do in order to get a carry-back tax adjustment, as the government calls this kind of tax refund on previous years' income taxes. They are:

1. Compute your loss.
2. Make adjustments to amend the tax returns for the back years—in this case, the 1948 and 1947 calendar year tax returns.
3. File these schedules on the Treasury Department's Form 843 (a claim for refund), or its Form 1045 ("Application for a Tentative Carry-Back Adjustment").

Let's see in detail how these three steps are carried out.

A net operating loss is the difference between business expenses and the gross income from business transactions. It would be the loss shown on Schedule C of your income tax return if your cost of goods sold and deductions exceeded your receipts. In computing your operating loss or profit, you usually would not include such items as loss or gain on sales of securities or real property holdings held personally.

"Under the federal income tax law," points out the Department of Commerce, "a net operating loss has a broader meaning. It is the loss on the operations of a business after certain tax-exempt and nonbusiness income and deduction items are taken into account. These additional items are brought into the picture in a manner which usually makes the statutory net operating loss smaller than the real business net operating loss.

"These adjustments are required if your tax return contained capital gains and losses, depletion, income and deduction items not connected with your business, or a net operating loss deduction as a carry-over from another year.

"An adjustment is also required if you received interest on tax-exempt securities.

"If you are not affected by any of these adjustments, your net operating loss is the loss that you showed in Schedule C of your income tax return. In that case, it is unnecessary to read the following section and you can skip over to the next section entitled, 'The Net Operating Loss Deduction.'

"In computing your loss, start with the income tax return that you filed for the loss year. Certain changes must be made in the income and deduction items in that return, and certain items not included must be taken into account. If you filed a joint return, your net operating loss should be computed on the basis of the combined income and deductions of both you and your wife. All adjustments required in the income and deduction items must be made as if they were for the income picture of a single person. If your wife has income but is not engaged in a business, a joint return will usually show a smaller operating loss, and hence less tax relief.

"If you received interest on securities that are exempt from taxation during the loss year, you must add this interest to your total income. However, if you paid out interest on a loan that you had obtained for the purpose of buying these tax-exempt securities, you may

deduct that interest *paid* from the interest *received*, and include the net amount as an addition to total income in computing your loss."

For example, let's say the income on your tax return (this, remember, is for a "back" year) was $5500. You received $1500 interest on tax-exempt securities. But you borrowed money to purchase the securities, and had to fork out $500 in interest to the bank. So *net* interest you received was $1000. Your income, for tax refund purposes, then becomes $6500—the original $5500 income, plus $100 *net* interest you received.

In your 1948 and 1947 income tax returns you were permitted to take certain deductions for outlay not connected with the operation of a business. For operating loss computation, limitations are placed on these deductions. The total allowed for these items cannot exceed the total amount of income received from activities outside your business—unless you have a net nonbusiness capital gain. If you have such a gain, your nonbusiness deductions can be equal to your nonbusiness income plus your net nonbusiness capital gain. Any nonbusiness deductions left above that sum cannot be included in computing your net operating loss.

The Department of Commerce states "if you included capital gains or losses in your tax return (Schedule D), it will be necessary to reclassify these items by grouping them into business and nonbusiness gains and losses. Each group must be treated separately in figuring your net operating loss. Long-term gains and losses (on assets held more than 6 months), which Uncle Sam allowed you to count at only 20 percent in Schedule D of your tax return, must be adjusted to show 100 percent. Just as in Schedule D of your tax return, you should compute your net capital gain or loss. But this should be done separately for business and nonbusiness items. Your net nonbusiness capital gain can be offset by a part of your nonbusiness deductions *if* they are not fully offset by nonbusiness income. Any remaining net nonbusiness capital gain can be applied as an offset to a net business capital loss.

"Under the federal income tax law the income of a partnership is taxed in the hands of the individual partners. The partnership, itself, is not a taxable entity. For this reason the partnership net operating loss must be allotted to the individual members who may then apply their own shares as a loss deduction on their personal tax returns.

"The partnership loss is divided among the partners according to each one's share in the ownership of the enterprise, in the same way as the division of profit and loss. In making the allocation of loss to each partner, it is necessary to assign to each his personal share of the income and deduction items. The adjustments for tax-exempt interest, business and nonbusiness items, including capital gains and losses, must be made in each case. Long-term capital gains and losses must be counted at 100 percent of their value. A schedule showing the calculation of the net operating loss should be attached to the partnership information return, Form 1065, which must be filed annually under the income tax law."

When you have determined the amount of your net operating loss, certain adjustments must be made in your income and deduction items for each of the years to which the loss is to be carried.

The adjustments in your income in the carry-back year to determine the amount of your operating loss deduction are very similar to those which must be made for the operating loss itself. The principal difference is that a separate treatment of business and nonbusiness items is not necessary. Long-term capital gains and losses, which in the tax return are counted only at half of the actual amount, are adjusted now to show the *full* amount. All *net* capital losses may be deducted. In other words, if you lost more than you made, you take your net loss—the total loss figure, minus the total gain figure—off as a deduction.

Again, interest received on tax-exempt securities must be included. But, again, only the net interest counts; if you borrowed money and paid interest on it in order to buy the securities, then you can count the interest you pay off the interest you receive.

When you have "adjusted" the carry-back year on which you are figuring (1948 or 1947), you'll find that you have a higher net profit than you originally had for income tax purposes. See how much you have increased the net profit. Then the resulting *increase* is deducted from the net loss you had in 1949. If you still have any net loss left for '49, then you're in like Flynn as far as getting back some tax money.

If you had an extremely bad year, and there is still a loss figure left, you apply it to another carry-back year. You take the oldest year first. In other words, you figure first on 1947. Then, after you have "wiped out" the 1947 profit—provided your loss in 1949 was that high—you next work on 1948.

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was Phillip Gran, lecturer and radio commentator, whose subject was *Today's Threat To Our Individual Initiative and Enterprise*. Mr. Gran fears that our present drift toward the welfare state is sapping our energies, and that we must return to the old concept of the state as the instrument of the people.

Illinois Firm Invites Public To Visit New Office Building

When the Irions Concrete Block Company opened its new office building recently, everyone in the Chillicothe, Ill., area knew about it. Through a full-page announcement in the local press the firm invited the public to attend an open house that lasted for six days.

Products of this concern include the following: concrete and Celocrete block, concrete brick, Spray-O-Bond sealers and paints, and other building supplies.

Lefler Concrete Block Co. Initiates Expansion Program

Business is good at the Lefler Concrete Block Company in Charlotte, N. C., a fact readily proved by the firm's current expansion program, which thus far has resulted in the addition of considerable footage to the plant site. Total area of the lot is now 46,000 square feet.

This additional ground has been graded, and a modern drainage system has been installed in order to prepare it for storage of concrete block, drain tile and other Lefler products.

Chickens and Phil Evans Like Cinder Blox—Phil Says So

The commercials on the KMBC-KFRM team's noonday program at Kansas City, Mo.—Phil Evans' grain and produce markets—have an authoritative flavor, for when Phil pours it on about his sponsor's product, he knows what he is talking about.

"Cinder Blox", made by Cinder Concrete Products, Inc., topic of Phil's complimentary remarks, are good, says he, because he has used them. The units went into the construction of his chicken house and several other farm buildings at the radio station's Service Farms.

H. E. Kilmer of the Iowa Concrete Block & Material Company, Des Moines, Ia., has been elected a director of the manufacturers and jobbers bureau of the Des Moines Chamber of Commerce.

Consistency Meter for Commercial Ready-Mixed Concrete Plants

another ON THE SPOT report

By EDWARD J. BRUNENKANT

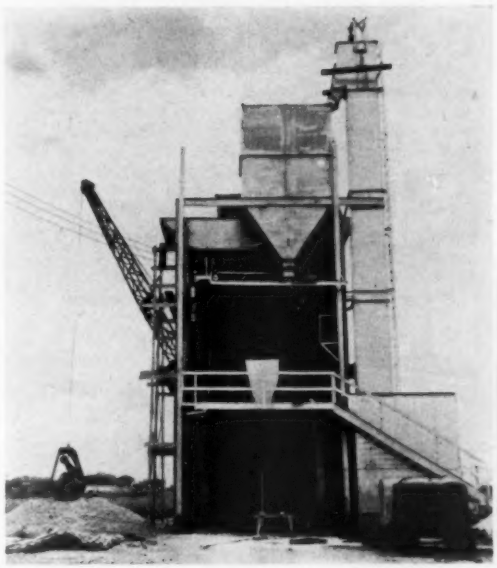
MOST authorities agree that commercial ready-mixed concrete can be used advantageously on at least 60 percent of all construction work. Although the annual volume of concrete poured from ready-mix plants is still below this level, the industry has recorded a remarkable growth from the few hundred thousand cubic yards that marked its output some 25 years ago (to around 26,500,000 cu. yd. in 1949).

With the tremendous increase in production there was a natural evolutionary improvement in plant equipment and manufacturing techniques. And at the same time, as the use of concrete became more universal, there was a broader application of concrete technology to the writing of specifications, with the result that commercial ready mix plants had to be able to supply a number of different mix designs within closer tolerances. Today's ready-mix plants, with modern batching and mixing equipment, can consistently and economically produce concrete meeting almost any specification.

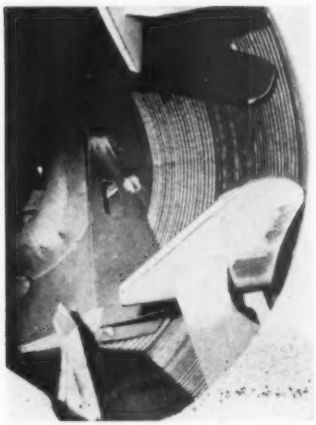
One specification, however, that has long been a stumbling-block to ready-mix operators is that of consistency. Consistency relates to the tendency of a concrete mix to flow and may be compared in some aspects to the term viscosity as applied to liquids. In concrete technology consistency is closely related to plasticity and workability. Since all measurements (flow table, slump cone, and visual inspections) of this characteristic of concrete are made after the concrete is discharged from the mixer, it is impractical to correct any irregularities in the batch tested. Corrections, of course, may be applied to subsequent batches.

Because consistency is determinative, where aggregates and cement are properly batched, of the quality of the concrete, some means of measuring this characteristic while the mix is still in the mixer seems essential. Over a span of many years numerous devices for this purpose have been developed, tested, and for the most part discarded as impractical. A new consistency meter developed by Glenway Maxon, a Milwaukee consulting engineer, appears to have overcome the objections and limitations encountered with the use of other instruments. This instrument, the "Plastograph," was first used and tested on a central mix plant operated by the Kolinski Concrete Company of Milwaukee, Wis.

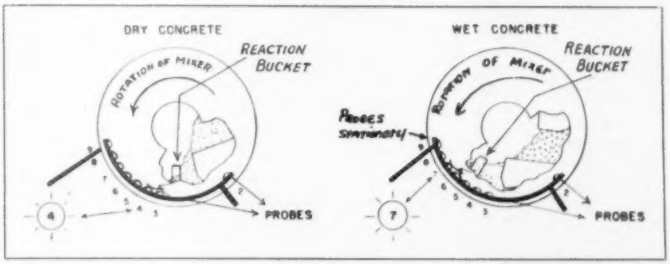
Members of the Corps of Engineers observed the Plastograph in operation there and with minor changes adapted it for use on the



• A general view of the new central mix plant of the Kolinski Concrete Company, Milwaukee, Wis., taken before the front side was enclosed against the weather.



• An inside shot of the mixer drum, showing the arrangement of the mixer blading. The upright blade (at the bottom of the photograph) is the reaction bucket.



• These two drawings show the position of rotation of the reaction bucket with wet and dry concrete. Notice that the moment of impact of the bucket with the wet mix has shifted to the left (about probe 7, as compared to probe 4 for the dryer mix). It should be pointed out that the probe circuit does not rotate with the mixer drum, although it tilts with the mixer when the latter is discharged.

concrete plant at the Allatoona Dam. The instrument observed by this writer was installed on the newest central mix plant erected by the Kolinski Concrete Co., which now has three installations set up in the Milwaukee area.

Essentially the measurement of consistency by the Plastograph is a function of the flow of concrete while it is in the mixer—a direct attack on the problem, since for practical purposes there is little difference between flow and consistency. Functionally the instrument records the moment of impact of the concrete with a reaction bucket revolving with the mixer drum—one recording for each revolution of the drum. The pivoting of the reaction bucket due to the impact of the concrete closes a stationary contact point on an electric circuit outside the drum, which indicates the position of the bucket in relation to the vertical axis of the mixer drum. This electrical impulse is relayed to a light panel indicator located on the batching floor and to an ink recorder for permanent recordation. The contact points of the circuit are placed radially around the circumference of the mixer (but do not rotate with the drum) and are adjustable at predetermined intervals to conform with various slump determinations worked out beforehand for the aggregate used at that plant. Therefore closing the circuit at any specified contact point can be readily correlated with slump and workability.

Although the Plastograph may be used on any rear-charging, front-discharging, tilter-type mixer, the instrument has been installed at the Kolinski plant on a new tilting 3-cu. yd. mixer, also designed by Mr. Maxon. The mixing blades are set in a pattern to interrupt the flow of the concrete in the drum. The reaction bucket is mounted near the center of the drum and just behind the gap formed by the intersection of one set of charge and discharge blades.

As the batch is first introduced into the drum, the mix is moved to the right (looking toward the discharge end) due to the counterclockwise direction of rotation of the blading. On the first few revolutions the reaction bucket is not pivoted by the concrete flowing through the gap formed by the intersection of the blades until it reaches the position represented by probe 2 in the illustration. As mixing progresses the point of impact of the concrete with the reaction bucket shifts to the left. Upon completion of the required mixing time the starting point of impact stabilizes somewhere between probe 3 and probe 9, indicating the consistency of the mix.

The reaction bucket is mounted on a pivotable shaft to the external end of which (outside the mixer) is mounted a wiper or shoe. Slight rotation (1° or 2°) of the reaction bucket pivots the shoe onto the probes or contact points of the electric circuit. Completing the circuit at one probe will close the circuits consecutively at all probes to the right, e.g., if the reaction bucket is pivoted at probe 5, probes 4, 3, and 2 are in turn closed indicating the concrete is wet enough to flow beyond the position necessary for contact with those probes.

Rotation of the shaft is limited by a stop on the outside of the mixer. After rotation the shaft is pulled back into a neutral position by means of a spring.

Since this report covers one of the first commercial installations of the Plastograph and as yet only meager operating experience data

(*Continued on page* 128)

NOW NO PALLETS NEEDED
to handle many kinds of materials
NEW SERVICE
MOTOWLIFT
with
AIR-EXPANDING
FORKS
(PATENT APPLIED FOR)
GRIPS the bottom course of stacked cartons . . . cases . . . bricks . . . concrete blocks, etc.

IMMEDIATE SHIPMENT
Get full information and prices on this cost-cutter in Bulletin 415. Write for your copy today.

Here's a revolutionary development in faster, easier, lower-cost materials handling. It works this way: When the air-expanding forks of this new Motowlift are inserted into the properly stacked material, the operator turns on an air compressor on the truck. Compressed air expands rubber tubes in the tines of the fork until they grip the load and hold it firmly. It's as simple as that.

INDOOR MILES Handle SAFER and SUPER

SERVICE CASTER & TRUCK CORP.

Executive Offices: Albion, Mich. ● Plants at Albion, Mich. and Somerville 43, Mass.

SEE YOUR CLASSIFIED TELEPHONE DIRECTORY FOR NEAREST DISTRIBUTOR

Last Word in Compactness Marks New Ready-Mix Plant at San Jose

another ON THE SPOT report

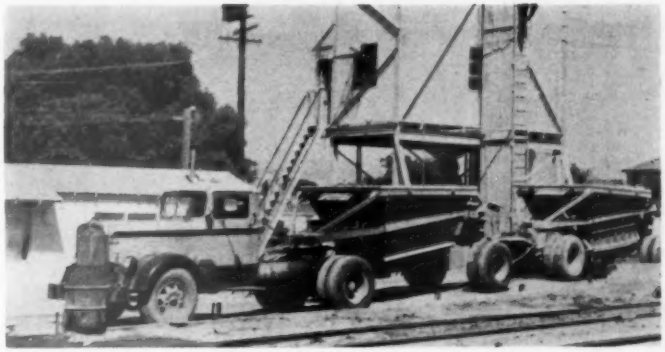
ONE of the finest ready-mixed-concrete plants to go into service this year on the Pacific coast is the new installation of the Central Concrete Supply Company, at San Jose, Calif.

The plant itself is a C. S. Johnson TY-400 assembly, sold and installed

By HARRY F. UTLEY

by the Edward R. Bacon Company of San Francisco. The Bacon firm also engineered the adaptations necessary to fit the plant, hoppers, and driveways into a small triangular-shaped plot adjoining the tracks of the Southern Pacific Railroad. The result is an extremely compact, highly-efficient installation. Batching capacity is about 75 cu. yds. hourly.

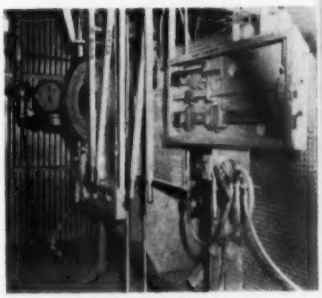
The C. S. Johnson Company's main manufacturing plant is located at Champaign, Ill., and it is interesting to note that the San Jose installation is believed to be the first on the West Coast wherein the steel bins, heavy supporting structure, elevator enclosures, etc., were fabricated in new branch facilities in the San Francisco area. The



•The new batching plant of the Central Concrete Supply Co., San Jose, Calif., showing an aggregate truck and trailer at the hopper.

saving in freight charges alone is reported to have amounted to nearly $1,500.

Because of the space limitations, elevators were used exclusively to bring the materials up to the plant bin. The entire plant, cement silo and all, occupies only a 28-ft. square



• Right: A corner of the batching floor, showing the scales, batching levers, and automatic water meter.

• Below, left: Another view of the plant from the bulk-cement silo side.

• Below, right: One of the mixer trucks being loaded.

in ground area, while the distance from the yard level to the top of the elevator is 64 ft.

The bin is a 4-compartment all-welded unit of 120-cu. yd. capacity, with a 165-bbl. central cement compartment. Aggregates are purchased and delivered by dump truck-trailer combinations. A 24-in. by 8-ft. belt driven from the elevator pulley feeds the aggregates from the 10- by 16-ft. truck hopper below ground to the boot of the 125-t.p.hr. elevator boot. The 16- by 8-in. buckets are carried by a continuous rubber belt. Two bin compartments normally store sand, the two other being used for ¾- and 1½-in. gravel.

The all-welded cement silo is of 520-bbl. capacity and is loaded conventionally by screw conveyor and elevator from the hopper into which the bulk-cement trucks discharge their loads. Both the cement and aggregate elevators, as well as the tops of the bin compartments are fully enclosed, making the operation remarkably dust-free and eliminating any annoyance on this score in a neighborhood near downtown San Jose which is rather solidly built up.

The 4-cu. yd. concentric cement-aggregate batcher has an accumulative dial scale for aggregates and independent fully-automatic single-beam scale for the cement. Water is measured by a 2-in. Neptune automatic-stop meter.

The Central Concrete Supply Co. is owned by C. P. Albanese, veteran San Jose cement contractor. Although this is Mr. Albanese's first batching plant, he has been in the ready-mix business for a number of years, his fleet of Jaeger units formerly being charged at other batch plants in the San Jose area.

William S. Barquist is company engineer, and Bill Brown is manager of the new batch plant.

J. Walter McGuire, sales manager of the Cinder Block and Material Company, Indianapolis, Ind., died on December 15, 1949, at his home after an illness of several weeks. Mr. McGuire, who had been associated with the firm for 25 years, became sales manager in 1944.

New Complete Central Mix Plant Announced by Gene Olsen Corp.

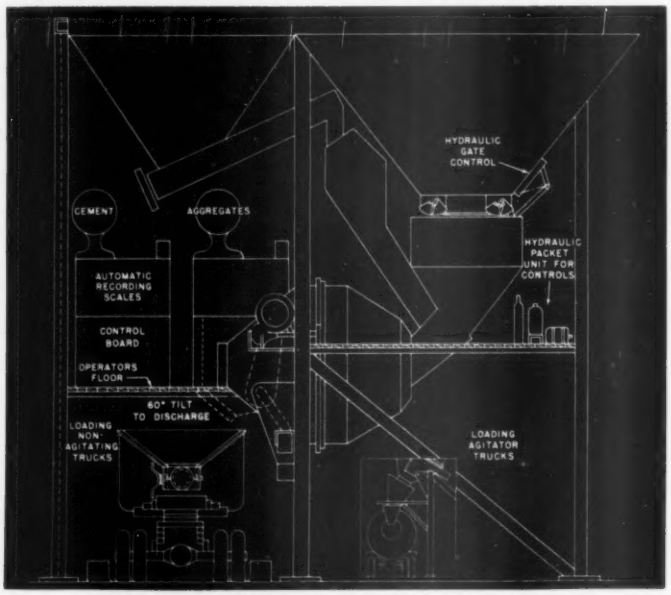
THE organization of SuPremix, an affiliate of Gene Olsen Corporation, offering a complete central mixing plant, was announced at an informal press conference on January 22, 1950. It was pointed out that this new concept in plant, mixing and hauling equipment stems from Mr. Olsen's belief in the need for an organization which can take full responsibility for the entire plant. SuPremix has been designed to provide efficient correlation of all units in the processing and delivery of concrete, with the effective use of air-entrained concrete as the primary objective.

The plant is a complete package featuring, according to the manufacturer, economy in the initial purchase, ease of erection and modest cost of production. The line will include the SuPremix concrete dumper, formerly known as the Hercules Aircreter.

The SuPremix tilting mixer is furnished complete with supporting frame. As a result of its tilting arrangement, the mixer is mounted much lower in the structure than other conventional types, thus eliminating elevated foundations and lowering the over-all plant height. The blade arrangement permits fast, thorough mixing and rapid discharge with the minimum of segregation.

The Plastograph recorder* is an integral part of the mixer which continuously measures the consistency of the concrete. The consistency or slump is visually recorded by light signals which permit the operator, even though remotely situated, to discharge repeated loads of specified slump concrete.

*For a detailed description of the Plastograph, see page 125 of this issue.



• Sketch of the newly developed "package" central mix plant.

Consistency Meter

(*From page* 126)

is available, it seems in order to include in part the observations noted by one member of the Corps of Engineers working on the Allatoona Dam job.

"(1) The Plastograph showed satisfactorily the workability of the mix at various times during the mixing operation.

"(2) The meter indicated a moisture change in time to make a correction either in the same batch or in the following one.

"(3) The Plastograph is a better indicator of mass concrete workability than any type of meter yet observed, being considered superior to a recording wattmeter or a slump test.

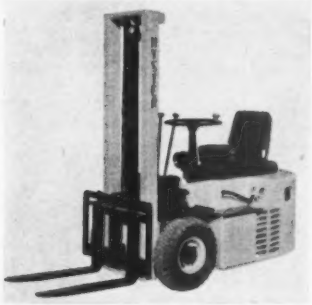
"(4) A change in the gradation of aggregates will cause a change in the meter reading."

Raymond Concrete Pile Company of New York City declared an extra dividend of $1 on common stock, payable on December 15 to stock of record December 5. This brought the total dividend for 1949 on the present share basis to $2.60. This compares with $2 declared in 1948. The stock was split two-for-one last April.

NEW MACHINERY and SUPPLIES

● 2,000-Lb. Lift Truck

On the market for the first time in February will be an entirely new 2,000-lb. capacity lift truck (Model 20) manufactured by the Hyster Company of Portland, Ore., and Peoria and Danville, Ill. Smallest in the company's line of seven industrial trucks, the new machine incorporates more than 70 basic improvements in design and construction.



Powered by a new Wisconsin air-cooled engine which can withstand great extremes in weather conditions, the new truck operates at substantially lower running temperatures because of alterations in both design and installation of the engine. Among engine changes are a new intake manifold; re-designed shrouds to pull cool, clean air from the sides of the machine, rather than from top or bottom; a new electric fuel pump; and a new distributor.

Engine accessory improvements include a larger automotive-type battery, a re-designed muffler with spark-arresting features; and a larger gasoline tank, with 8-hr. work shift capacity.

The new clutch, larger than before, provides smoother control and is claimed by the manufacturer to have twice the life of any other lift truck clutch on the market.

The transmission is now heavier and more rugged in construction to meet the rough demands of industrial work. Uprights, slightly lower in height than on the old 20, are now mounted on an extension of the truck frame, rather than on the transmission case. Tilt control of the uprights is now accomplished through double-acting hydraulic cylinders for both directions of tilt.

Other distinctive features of the new lift truck model include the following: easier steering, better braking power, lug-type pneumatic tires, and increased operator comfort through adequate foot room and an air-cushioned seat. Easy accessibility of parts for servicing is one of the major factors of design.

COMBINATION CEMENT AND AGGREGATE PLANTS (100 to 400 bbl.)
STATIONARY BULK CEMENT PLANTS (600 to 2500 bbl.)
PORTABLE BULK CEMENT PLANTS (100 to 400 bbl.)
STATIONARY AGGREGATE PLANTS (100 to 400 tons)
PORTABLE AGGREGATE PLANTS (25 to 100 tons)
AGGREGATE STORAGE BINS (10 to 225 tons)
CONCRETE BUCKETS (1/2 to 5 cu. yds.)
WHICHEVER WAY YOU LOOK AT IT—
HELTZEL BUILDS IT BETTER
Heltzel
Heltzel BUILDS IT BETTER
Heltzel BUILDS IT BETTER
Heltzel BUILDS IT BETTER
On every point of comparison Heltzel batching plants are better built. Engineered for the operator to give maximum production at lower cost. Constructed for trouble-free service and long life. Write for complete information.
HELTZEL STEEL FORM & IRON COMPANY
WARREN, OHIO, U. S. A.
1760 THOMAS ROAD

More PROFIT WITH VENTO STEEL BASEMENT WINDOWS

3 Sizes 2 Prices

Vento Steel Basement Windows are available in three sizes and two types — CHAMPION and Thrif-T — covering two different price brackets.

CHAMPION

Heavy steel channel frame, welded throughout. Made in three sizes — available with storm sash and screen. Double-contact construction blocks wind and rain. Can be opened partially or fully *(right)*.

THRIF-T

New "economy" Vento Steel Basement Window. Made for quality residential and commercial building at minimum cost. Heavy hot rolled steel, riveted construction. Three sizes—other features same as Champion Window, above. Two open positions *(right)*.

VENTO STEEL LINTELS

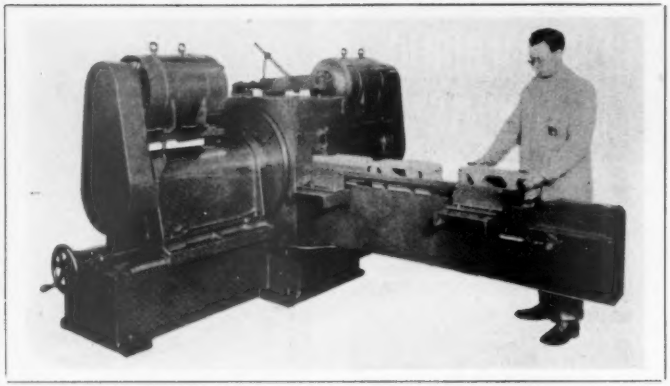
For quick, neat construction with standard-size cement blocks. Provides groove for anchoring steel window. Width — 7"; length from 2' 6" to 5' 6". Excellent finished appearance.

Cash in . . . on the *big profit opportunity* offered by these VENTO products!

Write or wire today for complete details, including information on territories still available.

VENTO STEEL PRODUCTS CO., INC.

254 COLORADO AVE., BUFFALO 15, N. Y.



● Block Grinder

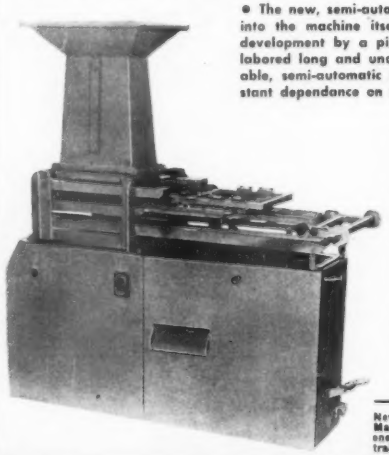
Charles H. Besly and Co. Beloit, Wis., has developed a machine for grinding the parallel sides of concrete blocks. This double-spindle grinder is equipped with a continuous chain feeder for "through-feeding" the blocks. It is claimed that the machine will grind blocks as fast as 15 per minute and to tolerances as close as .001 in. for parallelism.

All wearing parts of the model 630-30-in. grinder are made of hardened steel strips, jig-drilled for easy replacement. This machine uses a 30-in.-diameter abrasive disc that provides 33 percent more grinding area over the 26-in.-diameter disc commonly used.

One of the newer industries of the vicinity of Ephrata, Pa., is the concrete mixing plant of Kurtz Brothers, which was built last September adjacent to the A. G. Kurtz & Son quarry. To the present time, the output of the plant has been used for bridge construction along the Pennsylvania Turnpike. Production, upon occasion, has reached 700 cu. yds. per day.

You—or Anyone—Can Make Perfect Roof Tiles with the PERMA-TILER

● There are big profits to be made in the manufacture of concrete roofing tile. But don't throw your money away on so-called "machines" that depend on long, tedious training of machine operators before you can even begin to turn out an acceptable product.



● The new, semi-automatic PERMA-TILER has the skill built into the machine itself. It represents over 10 years of development by a pioneer roofing-tile manufacturer, who labored long and unceasingly to create this truly dependable, semi-automatic machine that has freed him of constant dependance on skilled operators.

● You can produce *both* French (modern streamlined), or Mission (half-round Spanish) tile, both interlocking, on your PERMA-TILER. The machine itself—not the operator—trowels each tile to a smooth, hard, watertight finish automatically. Anyone can turn out up to 350 tiles hourly.

● Profits from the PERMA-TILER should enable you to write off its modest cost in a few short months. Get full details about this new and foolproof machine . . . and get them TODAY!

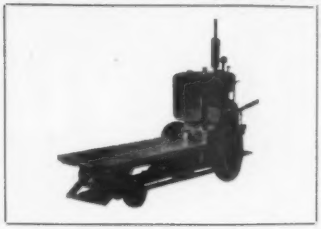
New PERMA-TILER Vibrator-powered Roofing-Tile Machine . . . semi-automatic action permits anyone to make 6 perfect tile per minute . . . no training or skill required.

PERMA-TILE CONCRETE PRODUCTS CO.

2201 Arrowhead Ave. San Bernardino, Calif.

● 4 Reverse Speeds

Four reverse speeds, as well as four forward speeds, are now available on all Erickson power lift trucks. This 4-speed unit is available on all new trucks at small extra cost, or may be



added to previous models already in service. The installation cost on trucks now in use is nominal and can easily be handled by the owner or operator.

Four reverse speeds save time in many yard operations, and are especially valuable with either platform or fork trucks, in handling racks of blocks in and out of kilns, as the truck travels just as rapidly in reverse as in forward speed. Erickson Power Lift Trucks, Inc., 1403 Marshall St., N. E., Minneapolis 13, Minn.

● Cement and Mortar Colors

C. K. Williams & Co., Easton, Pa., and East St. Louis, Ill., is producing cement and mortar colors and pigments "to meet the most exacting specifications" as recommended by the American Concrete Institute and the Portland Cement Association.

These colors are described as extremely fine powders, insoluble in water, free from soluble salts and acids, sunfast and resistant to alkali and weak acids. The cement pigments are used in products such as asbestos-cement shingles, cast stone, floor tile, bricks, etc.

● Leather Hand Pad

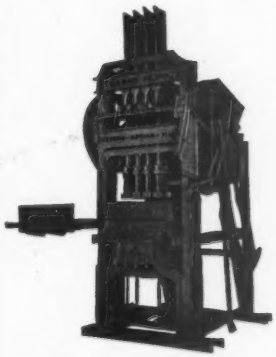
The GS "Safti-Mitt" handpads, designed by safety glove specialists, offer maximum protection and comfort. Adjustable to any size, the snap-fastened strap keeps the pad in place and makes removal easy. They are made of heavy genuine horsehide for long wear. Now available from General Scientific Equipment Co., 27th and Huntingdon Sts., Philadelphia 32, Pa.

The use of the GS handpads prevents costly hand injuries and helps speed production. Time lost due to accidents and infections is greatly reduced. Well made,

these long-wearing hand protectors are especially made for handling block, brick, tile, metal sheets, stampings, sharp-edged castings, for many other uses where hand injuries are a risk. General Scientific Equipment Co., 27th and Huntingdon Sts., Philadelphia 32, Pa.

"Truck-Man," the gasoline-powered inter-plant truck, is now being produced by Truck-Man Division of The Knickerbocker Company, Jackson, Mich., according to an announcement by S. L. Walker, sales manager. The new owners have been known since 1883 as manufacturers of contractor's machinery and mixers. The steady growth of Truck-Man, Inc., formerly a division of Yard-Man, Inc., had been causing an increasing overcrowding of the facilities of the parent company to a point where the expansion of both was impeded. The Knickerbocker plant is ample for production of Truck-Man in volume.

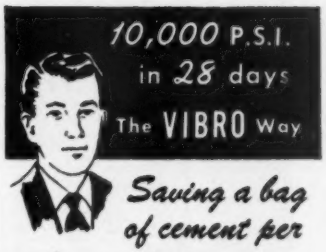
Mr. Walker states that the new management will embark on an aggressive plan of merchandising, advertising and distribution of three Truck-Man models through the more than 80 existing Truck-Man representatives and dealers. The company also plans to campaign for new markets and to make strong efforts in the building block and construction field through the Knickerbocker equipment distributors.



The Clipper Stripper, shown above, available in 8 models, is only one of the popular machines in the ANCHOR Line of Complete Equipment for the Concrete Products Plant. ANCHOR Engineering Service in the design of new plants or revamping older operations is nationally famous. Consult us before you buy equipment or modernize your plant . . . it costs no more.

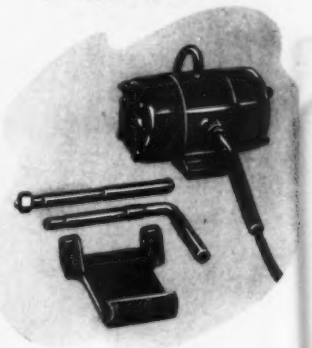
Stearns Clipper Stripper Machines; Stearns Jolicrete Machines; Stearns Mixers; Cast Iron and Press Steel Pallets. Straublox Oscillating Attachments, etc. Repair parts for: Anchor, Stearns, Blystone Mixers and many others.

ANCHOR CONCRETE MACHINERY CO
G. M. Friel, Manager Columbus, Ohio



Saving a bag of cement per cubic yard of concrete

More than 75 % of form costs . . .



A recent job involving the manufacture of 1400 heavily reinforced concrete gratings for Airport drainage, obtained these results by using two VIBRO-PLUS TOP DOG VIBRATORS. Two forms produced thirty (30) castings a day.

To avoid the entraining of air, a harsh mix of 2.2 gals. of water per sack of portland cement was used. The problem of distributing the concrete was an acute one, because of the heavy reinforcing and resulting small pour space. Two VIBRO-PLUS Top Dog vibrators solved this problem by rendering the concrete in this mold fluid; and consolidated the dry harsh concrete mixture by PRECISION VIBRATION.

USES: Pipes, gratings, septic tanks, and other specialty forms, also chutes, bins, hoppers.

Write us for specific information as to your particular vibration problem; and free booklet.

MAIL THIS COUPON TODAY!

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Woodside, L. I., N. Y.

GENTLEMEN: PLEASE SEND YOUR FREE TECHNICAL BOOKLET ON CONCRETE VIBRATION.

Company _____

Address _____

City _____ State _____

Name _____

VIBRO-PLUS PRODUCTS, INC.

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WOODSIDE L. I. NEW YORK

ROCK-BOTTOM COSTS on TOUGHEST JOBS

KOEHRING 1½ yd.

WITH this rugged Koehring 1½-yard, you can keep costs low . . . output high on the toughest rock jobs. Your earnings are protected against costly down-time because every closed assembly from the 605's big payload dipper, rigid dipper shaft and massive rock boom to its wide base-type mounting, is extra-heavy-duty. Heavy coil spring shock-absorbers on boom foot withstand torsional twists and strains . . . protect entire machine against shock loads of heaviest shovel work.

Output stays high right up to the end of shift because there's less operator fatigue. The 605's big 17" power clutch does the heavy work . . . cuts normal lever pull 90%. Requires only 7 lbs. pull . . . yet retains load "feel". Fast, smooth swing, cool-running clutches and independent boom hoist also keep production high. Simple compact machinery arrangement simplifies adjustments, assures less down-time . . . more work time. Get all the facts from your Koehring distributor TODAY.

OTHER KOEHRING HEAVY-DUTY EXCAVATOR SIZES: ¾-YD. 205 . . . ¾-YD. 304 . . . 2½ 21-YD. 1905

KOEHRING HEAVY DUTY

KOEHRING COMPANY

MILWAUKEE 10, WISCONSIN

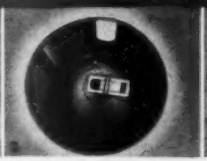
Subsidiaries: JOHNSON • PARSONS • KWIK-MIX

605

Ask your Koehring distributor to show you how this fast-shuttling Dumpster, with its 6-yard rock body, cuts costs, steps up production on your off-highway hauls. Travels 3 speeds forward and reverse . . . climbs 24% grades fully-loaded . . . dumps in a second.

INCREASE BATCH PLANT PROFITS
with Johnson accessories

Rotary Vane Compressor gives 7 cu. ft. air pressure per min. cement aeration. 15-lb.-limit relief valve.

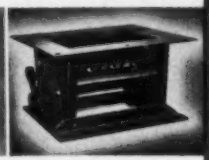


Aeration Fittings properly spaced in Johnson bins and silos keep cement free flowing.

2-Way Elevator Discharge Valve, a flop-type chute, directs flow of cement to the storage tank.

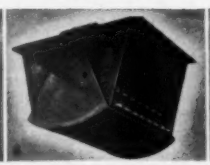
Pivoted Distributor feeds aggregates to bin sections. Positions and locks by ground control wheel.

Bin Signals accurately register high and low levels in cement or aggregate. Dust-proof.

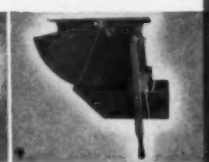


Rotary Plug Valve accurately controls cement flow. Plug operates freely in self-aligning bearings.

Receiving Hopper 30 and 50-bbl. sizes, feeds bulk cement to elevator. All-welded, weather-proof.



Aggregate Fill Valves single clam, radial type for jam-proof closing. Hydraulic pressure lubrication.

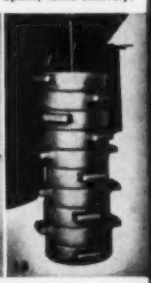


Tunnel Gate for stockpile reclamation. Single radial clam. Hinged spout opens, locks, securely.

Safety Cage of 28" steel, welded to casing, can be furnished with all Johnson elevators.

Water Weigh Batchers, semi- or full-automatic types. 120 and 240-gal. sizes available.

Cement Batcher scale frame, rotary plug valve, discharge gate, shroud. Manual, semi, full-automatic.



Batcher Test Weights in sets of ten, 50-lb. calibrated units, for checking batcher accuracy.

Mail to **C. S. JOHNSON COMPANY**
CHAMPAIGN, ILLINOIS
(Koehring Subsidiary)

Send us literature on items checked: 1 2 3 4 5 6 7 8 9 10 11 12 13

NAME _____ TITLE _____

COMPANY _____

STREET _____

CITY _____ STATE _____

It pays.....

to modernize your plant... and here's the block machine to do it!

Appley-Yellen Assures You HIGH Output with LOW Investment Cost!

Economical Low maintenance and operating cost. Uses low air pressure (80-100 lbs. per sq. in.). Made to jigs and fixtures, each the same. All parts interchangeable...wearing parts few!

Efficient Auto-controlled. 3,500-block output per day with minimum crew! All blocks uniform, true-sided...low rejects and spoilage.

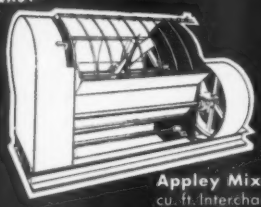
Simple to Operate Finger-tip controls; three operating levers only. Few moving parts. Easily changed for each type of aggregate.

Rugged Designed and constructed for heavy-duty operation. No high-pressure parts!

Versatile Fits into your present operational procedure. Manufactures all types of blocks from one core box equipped with quickly interchangeable cores.

APPLEY-YELLEN ALSO OFFERS:

Appley Skip Hoist -- sturdy, dependable. Fast, accurate loading. For 14 or 28 cu. ft. mixer -- on ground or above machine.



Appley Mixer -- 14 or 28 cu. ft. Interchangeable lining. Rubber-covered blades.

Appley Little Giant Slump Block Machine -- efficient, economical hand-operated

MISHCO CORPORATION ★ 615 S. W. 2nd AVENUE ★ MIAMI, FLORIDA
J. W. APPLEY & SON, INC. ★★★ ST. PETERSBURG 2, FLORIDA

The SMITH MIXER was "TOPS" in 1900 and Still Leads the Parade TODAY!

1900

The first duo-cone, tilting-type mixer.

Back in 1900, the first duo-cone, tilting-type mixer went to work . . . the product of the inventive genius of the late Thomas L. Smith. Judged by today's standards, it was a crude machine, but "TOPS" for mixers in those early days . . . the forerunner of the famous Smith line of concrete mixers that has made history in the construction industry.

In the half-century that followed, Smith Engineers added many improvements and refinements. They also developed new types of mixers, as well as truck mixers and agitators . . . faster, more modern machines that give greater convenience, speed and efficiency in concrete mixing. Many of the world's greatest concrete projects . . . power dams, bridges, skyscrapers, highways, airports, housing projects, etc., were poured by Smith Mixers.

Today, Smith still leads the parade with the World's finest and most complete line of mixers . . . from the small 3½-S Mascot to the huge 6 yard Tilter . . . the World's largest concrete mixer. Also truck mixers in 2, 3, 4½ and 5½ yard sizes and agitators in 3, 4¼, 6⅛ and 7⅜ yard sizes. Write for catalogs.

The T. L. SMITH COMPANY
2887 N. 32nd St. • Milwaukee 10, Wis., U.S.A.

1950

One of the big Smith Tilters developed for modern central mixing plants.

Smith-Mobile—the leading Truck Mixer and Agitator for Ready-Mix Plants.

The Combination that's "TOPS" today

Smith Tilters for mixing concrete and Smith-Mobile Agitators for delivering the mixed concrete to the job. This winning combination assures bigger pay loads . . . more trips per day . . . increased profits.

1900 *Our 50th Anniversary* 1950

A Half Century of Progress Building Better Mixers

Concrete Manufacturer Used Equipment Section

Advertising rate per issue: $10.00 a column inch. 10% discount for 4 consecutive issues. (Lower rates on a contract basis.) Advertisements received by February 22nd will appear in the March issue.

SPACE HEATERS

War Surplus Bargain

New — Ready To Use!

40,000 BTU capacity

—Burning gasoline, kerosene or diesel fuel.
—Electric blower—12 V. DC or 110 V. AC using small transformer.

Portable, Quick, Clean Heat

Ideal for curing room, concrete plants, work under construction, emergency heat, or auxiliary heaters.

$95.00 each

Clapp, Riley and Hall Co.

14 No. Clinton St., Chicago 7, Illinois

For Immediate Shipment

We have 5 Factory Rebuilt Multiplex Standard Tampers, carrying a new machine guarantee, for immediate sale, including 12 cubic foot mixers and elevators. All worn parts have been replaced and machines completely overhauled. Any quantity of pallets of all sizes available. These machines will produce all sizes and types of block, including attachments for design face block. Can be seen in operation in our demonstrating department. These were traded in on our new Multico machines, and are being sold subect to prior sale. Write or wire.

MULTIPLEX MACHINERY CORPORATION ELMORE, OHIO

FOR SALE

Large acreage, containing huge yardage of first class red cinders & also huge yardage of well burnt red shale, also small block plant, drying sheds, boiler, tamper machine, etc. Low taxes, power & water. Located in a rich district in Western Canada — warrants a large production machine. For full details write

Box No. S 3, c/o Pit & Quarry Publications
538 So. Clark St. Chicago 5, Ill.

FOR SALE

Besser Vibrapac—makes 3-4, 2-6, 2-8, 1-10, 1-12, 8" header, air offbearer. Besser 25' mixer, 30' skip, in good cond. with many new parts, approx. 1700 steel pallets, 70 steel racks, air compressor, water meter, automatic transporter with new battery & parts, new — never used 45' steel enc. belt bucket elev., 45 yd. 2 comp. steel bin with vol. batcher, 1948 Erickson fork lift used very little, with motors, starters, switches, all for $20,000.00.

Besser semi-automatic 3½ per minute tamper with V belt drive and pallets $600.00.

25' Multiple mixer, motor & V belt drive, new liners, like new $1200.00. 35' open steel bucket elev. with new Pintle chain $300.00.

Int. K-8 with 10 motor 24' flat bed Highway Trailer with 10.00 tires all around, low mileage, first class shape $4000.00.

STRONG BLOCK CO.
La Crosse, Wisc.

FOR SALE — REASONABLE

Due to installing larger equipment —No. 7 Joltcrete, complete with 4"-8"-12" mold boxes. 8" box, new, with replaceable liner plates, others, very good condition.
App. 3300 ZONAL steel 4" pallets. App. 300 Double Corner — 375 Single Corner — 2400 Reg. 8" DIRGE, steel pallets. 1100 Reg.—100 Cor.—100 Double Cor. Cast Iron 12" pallets.
55 Wood block racks—all control switches for machine — all spare parts including spare Vibrator motor. Machine running every day and in good condition. Surplus March 15th.

SPEIGNER CONCRETE BLOCK CO.
P. O. Box 113 Dothan, Ala.

FOR SALE

1—NEW, (never used) 12 cu. ft. mixer. Guaranteed $395.00
This is the lowest price ever made for a new 12' mixer.

WM. M. CHASE (Dealer)
15 Linwood Ave. Buffalo 2, N. Y.

CEMENT COLORS — PROMPT SHIPMENTS

Write for samples and prices of "LANSCO" CEMENT COLORS in bright shades of RED, YELLOW, GREEN, BLUE, BLACK, BROWN. Manufactured by

LANDERS-SEGAL COLOR CO.
76 Delevan Street, Brooklyn 31, N. Y.

FOR SALE

1 COMPLETE BLOCK MANUFACTURING PLANT in operation in fast growing community of Pasco, Washington, 10,000 population, located 15 miles from the Atomic development at Richland, Washington. The only factory in community. Partnership being dissolved reason for selling. Price $50,000, one half down, terms on balance. The above was built new in 1948.

TED BOLIN
120 So. Fourth Pasco, Wash.

FOR SALE

1—Besser K-3 Tamper Block Machine
1—4" attachment
1—6", 8", 10", and 12" attachments also
1—Floor Tile machine attachment
3000—12½" x 18" steel pallets
50—42 Block Racks
1—Clark Platform lift truck
1—Shovel front for Michigan Power Shovel

Priced to sell

NIEB CONCRETE PRODUCTS
U. S. 31 & Fort St. Niles, Mich.

TRUCK MIXERS FOR SALE

3—2 cu. yd. Jaegers Hi Discharge Mixers mounted on 1945-46 Ford trucks with 2 speed rears & 8.25 tires. Priced right for quick sale.

YARDVILLE CONCRETE SUPPLY COMPANY
Phone Trenton 5-1408 Yardville, New Jersey

PACKER-HEAD WINGS

McCracken Type — PROVED to last as long or longer — yet cost considerably less. Write for prices.

TEXAS FOUNDRIES
LUFKIN, TEXAS

FOR SALE

10—Fence Post Forms (All-Steel) $120.00
10—Flagstone or Stepping Stone Forms 50.00
1—Precast Step Forms, 5 ft. length 200.00
1—Adjustable lintel forms, makes 3 sizes .. 50.00

WM. M. CHASE (Dealer)
15 Linwood Avenue Buffalo 2, New York

CEMENT COLORS

All shades and grades the highest quality.
Write for color cards, prices and samples

RICKETSON MINERAL COLOR WORKS
MILWAUKEE 2, WISCONSIN
Established 1885

WANTED

WANT COMPLETE BLOCK PLANT WITHOUT LAND AND BUILDINGS. WILL PAY CASH. EVERYTHING MUST BE IN FIRST CLASS SHAPE.

Box No. R 4, c/o Pit & Quarry Publications
538 So. Clark St., Chicago 5, Illinois

WANTED

1 No. 7 or No. 9 Joltcrete Block Machine. Late model, attachments for making 4", 8", & 12" blocks, pallets for same, 60 steel racks, 48 blocks to a rack.
1 Electric Lift Truck.
1 20 cu. ft. Mixer.

Box No. R 15, c/o Pit & Quarry Publications
538 So. Clark Street Chicago 5, Illinois

CONCRETE MANUFACTURER USED EQUIPMENT SECTION

MINERAL COLORS
for
BRICK MORTAR
STUCCO-PLASTER-CONCRETE
"Fine Because of Their Fineness"
Ask for samples and recommendations.
BLUE RIDGE TALC CO., INC.
HENRY, VIRGINIA

OPPORTUNITY TO ENTER READY-MIXED CONCRETE BUSINESS

WE HAVE FOR SALE A WILLARD "SPEED KING" WEIGH BATCHER LOADER. Capacity two 2½ yard bins. With this piece of equipment you do away with aggregate (sand and gravel) bins. This machine cost us $5800.00 and is only one year old. **Will sell at terrific sacrifice.** If you own or are close to a sand or gravel pit you can set up a ready-mix plant at very little cost. Terms can be arranged by writing or phoning to

MORRIS & ESSEX CONCRETE CO., INC.
M. & E. R. R. Crossing Phone: CAldwell 6-0309 Roseland, New Jersey

PRICED TO SELL

The following two Lift Trucks are in dandy condition.
One used Lewis Sheppard-Rubber tires, roller bearings, and springs. Bed is 72" by 24".
One Used Barrett-Cravens with rubber tires, roller bearings—Bed 72" by 24".
$150.00 each f.o.b. Indianapolis, Indiana.
R. S. GEYER
876 Massachusetts Ave.
Indianapolis 4, Indiana

UNBREAKABLE
PALLET RINGS
Write for full information
TEXAS FOUNDRIES
LUFKIN, TEXAS

WANT TO BUY ACTIVE INTEREST IN READY-MIX CONCRETE PLANT OR SAND & GRAVEL BUSINESS LOCATED ANYWHERE IN SOUTHWEST.
Box No. S 11, c/o Pit & Quarry Publications
538 So. Clark Street Chicago 5, Illinois

FOR SALE IN CANADA

3—Model A Stearns Clipper Stripper
Steel Racks
Steel Pallets 4'-8'-10'-12'
18 cu. ft. mixer on flanged wheels
Can be seen in operation and for immediate delivery.
COOPER BLOCK LIMITED
645 Glen Park Ave., Toronto 10, Ontario, Canada

FREE

1—USED, 1946 STEARNS MODEL "A" Clipper Stripper Free if you buy all the pallets.
WM. M. CHASE (Dealer)
15 Linwood Ave. Buffalo 2, N. Y.

WANTED

BESSER SUPER VIBAPAC and BESSER
50 cubic foot mixer
Location, condition and price.
Box No. R 14
c/o Pit and Quarry Publications
538 So. Clark St., Chicago 5, Illinois

FOR SALE

9" x 24 Cedar Rapids Crushing and screening plant, with 2—20 yard storage bins, block plant with steam curing rooms, with 30 acres or more of gravel. Write
POSEN STATE BANK
Posen, Michigan

FOR SALE

Modern Burial Vault Plant on a 8 Acre Site with over 5000 sq. ft. of Mfg. space. Oldest established Co. in Wisconsin. Doing business the year around. Steady profits. Good reasons for selling.
Box No. S 2, c/o Pit & Quarry Publications
538 So. Clark St. Chicago 5, Ill.

WANTED USED

No. 9 JOLTCRETE or BESSER VIBRAPAC with auxiliary equipment.
WALTER WOJTOWICZ
24 Lexington Street P. O. Box 704
New Britain, Connecticut

Looking for Used Equipment?

Refer to the listings in this issue for a wide variety of used and surplus machinery and supplies.

CONCRETE MANUFACTURER

RESEARCH DEPARTMENT

538 South Clark Street Chicago 5, Illinois

Please send me catalogs and prices concerning the following items checked below:

- ☐ Admixtures
- ☐ Air Compressors
- ☐ Air Entraining Agents
- ☐ Autoclaves
- ☐ Bag Cleaners
- ☐ Batchers
- ☐ Batching Plants
- ☐ Belting (Rubber)
- ☐ Bin Gates
- ☐ Bin Level Controls
- ☐ Bins and Batching Equipment
- ☐ Blades, Masonry Saw
- ☐ Block and Brick Machine
- ☐ Boilers
- ☐ Bucket Loaders
- ☐ Buckets, Concrete
- ☐ Buckets, Elevators
- ☐ Buggies, Concrete
- ☐ Bulk Cement Handling Equipment
- ☐ Bulk Cement Storage Plants
- ☐ Calcium Chloride
- ☐ Car Pullers
- ☐ Colors, Cement and Mortar
- ☐ Conveyors, Belt
- ☐ Conveyors, Portable
- ☐ Conveyors, Screw
- ☐ Curing Agents
- ☐ Curing Equipment
- ☐ Cutters, Bar
- ☐ Dispersing Agents
- ☐ Flooring Systems
- ☐ Forms, (Pipe, Joist, Ornamental, etc.)
- ☐ Guns, Color Spray
- ☐ Hardening Agents
- ☐ Heaters, Concrete Mixer
- ☐ Hoisting Equipment, Concrete
- ☐ Hoppers
- ☐ Joist & Slab Machines
- ☐ Kilns, Curing Concrete
- ☐ Lift Trucks, Electric
- ☐ Lift Trucks, Gasoline
- ☐ Lift Trucks, Hand
- ☐ Lightweight Aggregates
- ☐ Meters, Entrained Air
- ☐ Meters, Water
- ☐ Meters, Sand Moisture
- ☐ Mixers, Concrete (Batch)
- ☐ Mixers, Concrete (Continuous)
- ☐ Mixers, Truck
- ☐ Mixing Plants, Central
- ☐ Molds, (Pipe, Joist, Ornamental, etc.)
- ☐ Off-Bearers
- ☐ Paints & Coatings, Concrete
- ☐ Pallets
- ☐ Pipe Machines
- ☐ Pumps, Concrete
- ☐ Racks, Curing (Concrete Masonry)
- ☐ Recorders, Concrete Batching
- ☐ Regulators, Temperature
- ☐ Reinforcing Equipment
- ☐ Sand-Lime Brick Machinery
- ☐ Saws, Masonry
- ☐ Scales
- ☐ Silo Stave Machines
- ☐ Silos, Storage
- ☐ Skip Hoists
- ☐ Skip Loaders
- ☐ Testing Equipment
- ☐ Tile Machines, Drain
- ☐ Tile Machines, Roofing
- ☐ Tractors
- ☐ Truck Bodies, Ready-Mixed Concrete, Non-Agitating
- ☐ Turntables
- ☐ Vibrators, Portable, Concrete
- ☐ Waterproofing & Dampproofing

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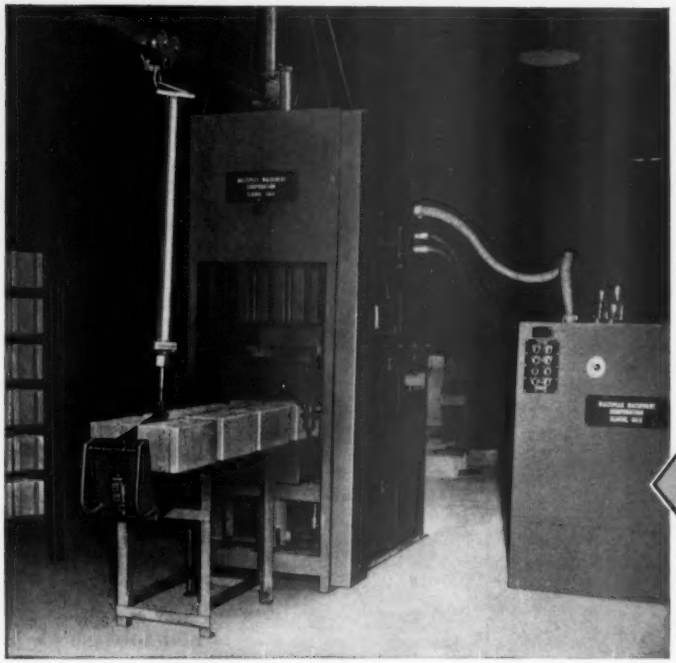
INDIVIDUAL .....

ADDRESS .....

CITY ..... STATE .....

LEADING BLOCK MANUFACTURERS *prefer*

MULTICO AUTOMATIC



BLOCK MACHINES

COMPLETELY AUTOMATIC

HANDLES ALL AGGREGATES

PRESSURE VIBRATION PLUS TAMPING

SEPARATE POWER PAK CONTROL CABINET

MAKES ALL SIZES & SHAPES OF BLOCKS

Exclusive! — Only Multico gives you Vibration, tamping and pressure!

The Multico is industry's most versatile block machine. It makes all sizes and shapes of blocks, thus you can fill *all* orders—faster. Its practically a factory in itself. The Multico takes the aggregate and tamps on pressure while vibrating—all fully automatically, *all in one operation*—no other block machine can do this. Its exclusively MULTICO. Once the controls are set the MULTICO needs no operator excepting, of course, the offbearer. Thus you cut down on overhead, cut down on labor, and produce finer quality blocks faster.

Not a special machine, but a simple rugged powerful standard production machine, parts are always available. Then too the separate power pak can serve later models—another saving.

The Multico is made in two models one for 2 block per cycle and the larger unit for 3 block per cycle.

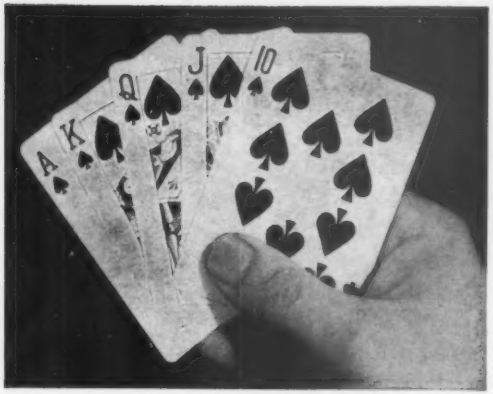
MULTICO
BLOCK MACHINES

MFGRS. of BLOCK MACHINES • MIXERS
SKIP HOISTS • STRIPPERS and ELEVATORS

"A BEAVER FOR WORK" MULTIPLEX MACHINERY CORP.

WRITE FOR FREE CATALOG

MULTIPLEX MACHINERY CORP. ELMORE OHIO



SELLING MEDUSA PAINT

is like holding a Royal Flush

● Selling Medusa Portland Cement Paint for concrete block construction is like betting on a royal flush . . . unbeatable! Eventually your block customer will buy paint for those blocks. Since you're the man who sells the block, you have an unbeatable opportunity to sell the paint! Make a bid for your customer's paint business on every block sale. Stock up on Medusa Paints. Show customers how Medusa Portland Cement Paint is low in first cost . . . weatherproofs block against rain or dampness . . . gives lasting beauty . . . and is moderate in cost. And don't forget to recommend Medusa Rubber Base Coating for painting concrete floors. This luxurious coating really "bounces off wear." Both paints are made in ten beautiful colors . . . both are easy to apply. Write for prices and color chip folders. Medusa Portland Cement Company, 1036-1 Midland Building, Cleveland 15, Ohio.

BEST for Masonry Surfaces

MEDUSA PAINTS

REG. U.S. PAT. OFF.

with truck-man!"

And that's not hay! That's what block plant operators across the country tell us they save with this economical, rugged truck. One man's time . . . every day . . . the whole year 'round . . . *that* adds up!

You save up to $300.00 and more during the first month you put Truck-Man to work in your block or brick yard . . . and you continue to save at that rate during years of faithful, dependable Truck-Man service.

Truck-Man is a light, speedy, highly maneuverable truck that works a shift on little more than a gallon of gas . . . requires minimum maintenance . . . has simple controls any worker quickly learns to operate. The special 62" platform handles even 72 block racks . . . those extra big loads that mean more profit per trip between block machine and curing room. Various platform heights, widths and lengths available to suit your operation.

There's an extra dividend for you, too, in the gentle treatment your blocks get. Truck-Man's easy hydraulic lift and drop, soft *start* and *stop*, and rubber-cushioned ride spot your racks gently . . . no costly checking of green blocks to eat up profits.

New 1950 catalog describes three low-cost Truck-Man models. You owe it to yourself to get the whole story on this money-maker. Coupon brings your copy, at no obligation. Mail it now. Sales and service in 95 centers across the nation!

truck-man Div. of The KNICKERBOCKER CO.
571 LIBERTY ST. • JACKSON, MICH.

NAME _____ TITLE _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

— THANKS —

We wish to thank all of you people who visited the Oswalt plant in Forest Park to see Oswalt Engineering Service in operation.

We hope you saw things of interest, and enjoyed the Convention generally.

If we can be of any service it will be a pleasure to hear from you.

OSWALT

ENGINEERING SERVICE CORPORATION

1335 CIRCLE AVE. **FOREST PARK, ILL.**

Phone: Columbus 1-7073 — Forest 6-3898

NOW! IS THE TIME! to equip . . . to sell the profitable lintel market

There's a

KENT LINTELATOR

including the New Super, for every plant, large or small.

Can also be adapted to make SILLS, CRIBBING and FENCE POSTS

Yes, there's considerable extra business to get and increased profit to be made in lintels if you produce them fast and economically on a Kent Lintelator.

More and more block makers are proving this as indicated by enthusiastic reports. Several have installed additional machines.

Lintelator not only enables manufacturers to reach a ready market but expands this market through inherent advantages.

Lintels can match block texture. Any aggregate can be used. They're installed by masons. There's no delay or extra expense for steel erectors. Builders really like them and buy them in unexpected volume.

This is your *big* opportunity and NOW is the time to act. Write today.

Get The NEW BULLETIN Just Off The Press

The **KENT MACHINE CO.** **Cuyahoga Falls, Ohio**

Manufacturers of **CONCRETE PRODUCTS MACHINERY** *Since 1925*

Announcing the entirely new HYSTER 20

better in every way...

- **NEW** improved Wisconsin *Air Cooled Engine.* Efficient in *any temperature,* high or low. Greater H.P. than other 2000 pound trucks. Power to spare yet *cheaper to run.*
- **NEW,** long life, heavy duty Borg & Beck *Clutch.* Smooth as your automobile clutch. Estimated life over 2 times greater than other trucks. *It can be replaced in less than two hours.*
- **PNEUMATIC TIRES** — Big diameter, 10-ply rating (6.00x9).
- **SINGLE LEVER CONTROL** — one lever for hoisting, tilting.
- **LOW OVERALL HEIGHT** — truck with 9-foot lift only 78½ inches high. Other lift heights available.
- **EXTREMELY LOW OPERATING COSTS.** Almost 100 *new* mechanical improvements.

...Now on display at Hyster Distributors in all principal cities

HYSTER®
COMPANY
THREE FACTORIES
2926 N. E. Clackamas, Portland 8, Ore.
1826 North Adams... Peoria 1, Illinois
1026 Meyers Street... Danville, Illinois

the first completely modern 2000 pound Lift Truck

Designed by Materials Handling Engineers. Priced right, low maintenance costs, standardized repair procedures, low depreciation.

Operates equally as well inside or outside your plant. Low center of gravity, better visibility; EASIER ON FLOOR SURFACES, THE OPERATOR, AND ON LOADS.

THOUSANDS of HYSTER 20 trucks are in use in HUNDREDS of INDUSTRIES. NOW the New Hyster 20 Lift Truck can cut materials handling costs even more. SEE IT at your nearest HYSTER DISTRIBUTOR. While you are there, inspect his SERVICE facilities.

INCREASED PRODUCTION ✓
LOWER COST ✓
BETTER PIPE ✓

MODEL "C"

HYDRAULIC PIPE MACHINE

Produce your concrete pipe on a Dixon Model "C" Hydraulic Pipe Machine and you maintain a good margin of profit despite highly competitive prices.

Fingertip single valve control . . . variable speed drive with instant change . . . variable-action hydraulic pump that can be changed instantly while running . . . a completely automatic spinning bell-packer . . . a table that rises, lowers and locks automatically . . . these and other quality features assure top production, better pipe and lower costs with any crew. All wearing parts are of long lasting, wear-resisting alloys and complete stocks are carried for immediate delivery of any part.

Write today for complete information on this efficient machine. It's your low cost way to higher profits.

HOUSTON CONCRETE MACHINERY CO.

6600 WASHINGTON AVENUE HOUSTON, TEXAS

Manufacturers of:

Dixon Pipe Machines
Pipe Band Machines
Dixon Mixers

CONCRETE Dixon MACHINERY

Septic Tank Forms
Dixon Conveyors
Off-Bearing Carts

1950 Columbia
Block Machine

Plain Pallet

Precision Blocks

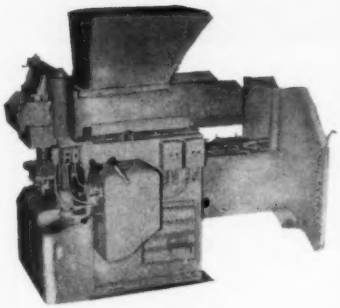
Maximum Production with Minimum of Labor

Low Investment

Three Sizes 4, 6, and 8 In. Blocks

Automatic or Semi-Automatic

Controlled Vibration with Syncronized Pressure



Model 8 Automatic

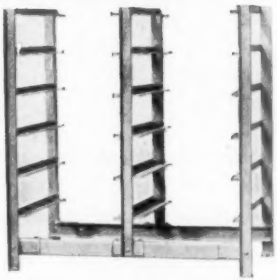
Manufactured by

Columbia Machine Works

105 Main. St. Vancouver, Washington

For Fork or Platform Lift Trucks Corrosion-Resistant Alloy Steel

- *Lift truck racks*
- *Turntables*
- *Concrete block cars*
- *Transfer cars*
- *Dump cars*
- *Dryer cars*
- *Decks*
- *Clay cars*



CHASE BLOCK RACKS & CARS

Sturdy construction, rigid field connection.

Available in any style or capacity.

Shipped knocked down for low freight cost.

Easily assembled without special tools or welding.

Write for catalog and price list on complete Chase line.

Chase Foundry & Mfg. Co.

COLUMBUS 7, OHIO

7 Million-Dollar Rush Job!

MACY'S

MARSHALL E. HARRISON
Mason Contractor—Kansas City

WINN-SENTER CONSTRUCTION CO.
General Contractors

KIVETT and MYERS
Architects

"The beautiful masonry design on the great new MACY Store in Kansas City had to be carried through against time penalty deadlines," reports M. E. Harrison, widely known Mid-Western Mason Contractor.

"That meant tremendous quantities of masonry saw cutting at top speeds—not only on Glazed Tile, but on Concrete Block, Clay Back-Up Tile, Brick, and Roman Brick. Our Clipper masonry saws and Clipper abrasive and diamond blades gave us marvelous results."

CONCRETE BLOCK Cut in 19 Seconds	GLAZED TILE Cut in 17 Seconds	GLASS BLOCK Cut in 8 Seconds	GLAZED TILE Cut in 17 Seconds
ACID BRICK Cut in 15 Seconds	FLUE LINING Cut in 11 Seconds	SLATE Cut in 15 Seconds	SEWER PIPE Cut in 18 Seconds

CLIPPER SAWS MAKE MONEY ON THE SMALL JOBS: Percentage-wise the small masonry jobs and repair jobs often profit most through use of Clipper Saws — because the ratio of labor to materials cost is usually greater. Brick—Stone—Block—Tile. Slice through them all in seconds!

M. E. HARRISON
MASONRY CONTRACTOR

9 MODELS
Priced from $195

MARSHALL E. HARRISON Says:

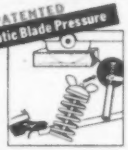
"I estimate that we effected at least a 25% saving cutting with Clipper saws and blades on the MACY project. And with the new Model HD Saw we eliminated dust completely from the re-modelling areas where customers were being served.

"Saw operators got more production with less fatigue by being able to make every cut and every saw adjustment from one spot without ever moving from their normal cutting position. When we had to move fast from one hot spot to another the Clipper Cutting Head was removed in seconds for fast, easy portability. And we didn't have to remove the water pump V-belt in switching from wet to dry cutting—that pump is really foolproof."

These Features Make Possible GUARANTEED Performance

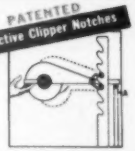
FREE TRIAL On Your Job

PATENTED
Automatic Blade Pressure



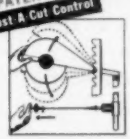
●Automatic regulation of blade cutting pressure. Provides instantaneous sensitivity for varying materials hardness and differences in Operator's cutting action. This Clipper patented BLADE PRESSURE EQUALIZER SPRING guarantees fastest cutting with longest blade life.

PATENTED
Selective Clipper Notches



●To shift Cutting Head up or down for every size material lift Head lightly upward and outward—then guide to desired Notch. (Exclusive Clipper patent). All weight supported by Connecting Rod "A"—Operator's hands merely guide.

PATENTED
Adjust-A-Cut Control



●A light pull on the Clipper patented "ADJUST-A-CUT" Knob — and Cutting Head is freed for finger-tip setting to any desired angle. Release Knob and the spring-loaded locking pin engages proper locating hole in Connecting Rod.

PATENTED
One Spot Operation

●From ONE SPOT at the front of his Clipper Saw the Operator performs every cutting operation and makes every saw adjustment. Takes a big physical load off Operator because he never has to leave his normal cutting position.

Clipper

NATION-WIDE DIRECT FACTORY SERVICE

MANUFACTURING CO.
KANSAS CITY 8, MISSOURI
Cable Address: CLIPPER K C Mo

PHILADELPHIA • ST. LOUIS • CLEVELAND • AUSTIN, TEX.
SAN FRANCISCO • CHICAGO • NEW YORK • PITTSBURGH

DRY ABRASIVE | DIAMOND BLADE | WET ABRASIVE

CUT WET or CUT DRY
There's a Clipper Blade for Every Job!

MAIL THE COUPON NOW!

CLIPPER MANUFACTURING COMPANY
2801 WARWICK • KANSAS CITY 8, MISSOURI

Send TODAY information on the FREE TRIAL offer and complete literature and prices on the 1950 Clipper Masonry Saws.

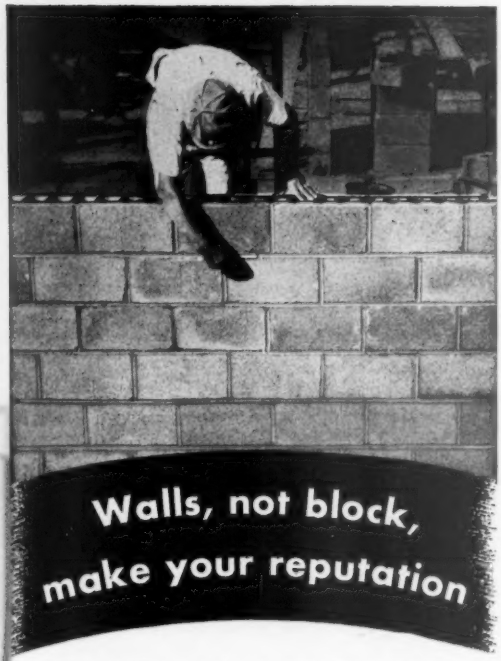
NAME_____

COMPANY_____

STREET_____

CITY_____ ZONE_____

STATE_____



You *make* concrete block, but is that what you *sell?* Is that what the ultimate customer buys when he purchases your product to build a house, a store, office, garage or factory?

No. He buys walls. He judges you and your product on the basis of how it performs as a wall—after the units have been laid. That's why your reputation depends on how well those walls serve, how well satisfied the customer is.

The first requirement for quality walls, of course, is quality block. That means complying with ASTM and Federal specifications for moisture content, strength and water absorption.

Yet quality block alone will not assure walls that give good performances. Quality construction is necessary too. For that reason farsighted concrete masonry manufacturers recommend only those contractors who can be depended on for quality concrete masonry construction.

In addition they make frequent inspections of construction on jobs where their units are being used. They know that quality walls are the best salesmen for additional jobs, the best insurance for continued success and future business.

PORTLAND CEMENT ASSOCIATION
33 W. Grand Avenue, Chicago 10, Illinois

A national organization to improve and extend the uses of portland cement and concrete . . . through scientific research and engineering field work

"COMMERCIAL" Pressed Steel PALLETS for MODULAR UNITS

Write for Folder

THE COMMERCIAL SHEARING AND STAMPING CO.
YOUNGSTOWN 1, OHIO

FLEMING OF ST. LOUIS

THE QUALITY NAME IN CONCRETE PRODUCTS PLANT EQUIPMENT

THE FMC 180

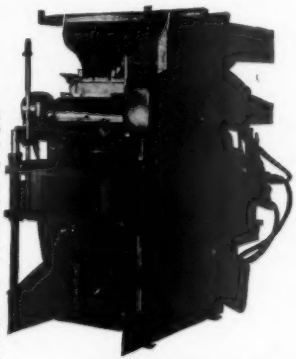
Automatic Concrete Block Machine

CUSTOMERS SAY —

"I still say you should call it the 225 as it turns out that many per hour, day in and day out."
Kingsport, Tennessee

"While you rate them at 180 per hour, we are presently running both machines at a rate of 240 blocks per hour on each. Our total labor cost in the kiln is 1½ cents per block."
Wichita, Kansas

"The timing is positive and not regulated by the operator. But, best of all, the machine is well made."
Independence, Missouri



THE PLAIN PALLET VIBRATOR AT LOW COST!

COMPLETE BLOCK PLANTS ENGINEERED TO YOUR REQUIREMENTS

FLEMING MANUFACTURING CO. INC.
COMPLETE CONCRETE BLOCK PLANT EQUIPMENT
1989 FYLER AVE. - - - - ST. LOUIS 9, MO.

Quality **CINDERS**

(ANTHRACITE)

CARLOAD SHIPMENTS

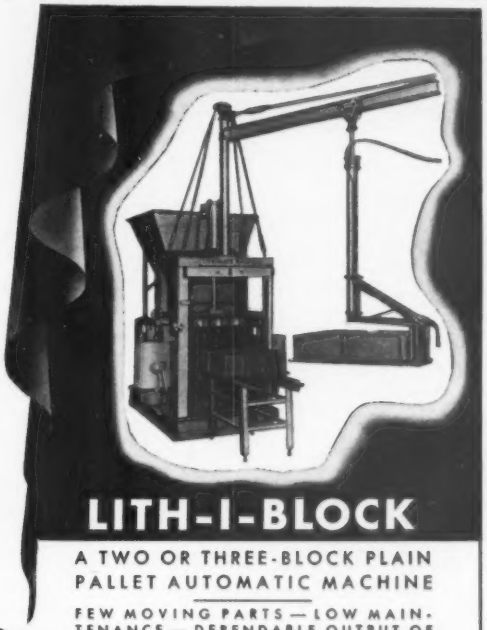
CLEANED, SCREENED, CRUSHED

SIZING: HALF INCH DOWN TO POWDER — READY MIXED FOR YOUR MIXER — LOW IN COMBUSTIBLE CONTENTS — FREE OF STAINING CAUSES.

STEADY DEPENDABLE SUPPLY SHIPPED ON SCHEDULE

WRITE US NOW — MENTION RAILROAD DELIVERY

H. HESSEY MILLER, CHESTER, PA.



LITH-I-BLOCK

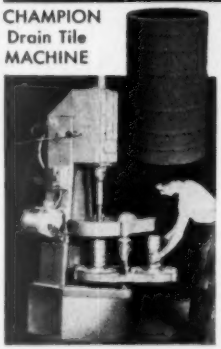
A TWO OR THREE-BLOCK PLAIN PALLET AUTOMATIC MACHINE

FEW MOVING PARTS — LOW MAINTENANCE — DEPENDABLE OUTPUT OF 8 OR 12 PRECISION BLOCK PER MINUTE

Write **LITH-I-BAR COMPANY**
HOLLAND, MICH. DEPT. CM-2

BIG PROFIT Manufacturing **Cement Drain Tile**

CHAMPION Drain Tile MACHINE



Farm drainage—home building—reclamation projects—highway construction. From these and other sources comes the biggest demand for drain tile in history. More local plants are urgently needed.

It's a wide-open opportunity. Either as an independent, full-time business or as a profitable addition to other concrete products.

World's Finest Tile

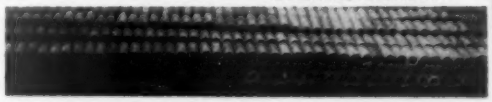
Champion-made drain tile are dense, strong, truly round and always uniform. No distortion, no shaling. Far superior to clay tile—worth more but can be sold for less. And still leave a handsome profit margin.

The Champion makes manufacturing easy. Pares costs. Requires no high-priced labor. Makes all sizes up to 12-inch. Yet calls for only a moderate investment.

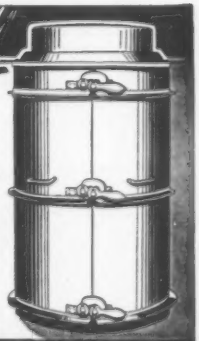
Get the Facts

Write for new Drain Tile Book. Tells about the possibilities in the drain tile business—costs of materials—selling prices—etc. Also completely describes the new Champion machine.

CONCRETE EQUIPMENT CO.
532 Ottawa Avenue
HOLLAND, MICHIGAN



The "Quinn Standard" **FOR CONCRETE PIPE**



The Quinn Standard is known as the best the world over, wherever concrete pipe is produced and used. Backed by over 35 years' service in the hands of hundreds of Quinn-educated contractors, municipal departments and pipe manufacturers who know from experience that Quinn pipe forms and Quinn mixing formulas combine to produce the finest concrete pipe at lowest cost.

QUINN HEAVY DUTY PIPE FORMS

For making pipe by hand methods by either the wet or semi-dry processes. Built to give more years of service—sizes for pipe from 10" up to 120" and larger—tongue and groove or bell end pipe at lowest cost.

WRITE TODAY. Complete information, prices, and estimates sent on request.

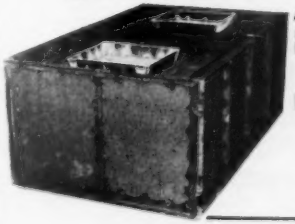
Also manufacturers QUINN CONCRETE PIPE MACHINES

QUINN WIRE & IRON WORKS 1627 12 ST. BOONE IA

CARPENTER SEPTIC TANK FORMS

and handling equipment are preferred by large precast tank manufacturers because they are:

QUICKLY *poured stripped handled reset for pouring again*



And lastly, loaded transported and set in the hole by *ONE MAN*.

CARPENTER MANUFACTURING COMPANY

Phone 22018
R.F.D. 1, Box 470
Richmond 23, Virginia

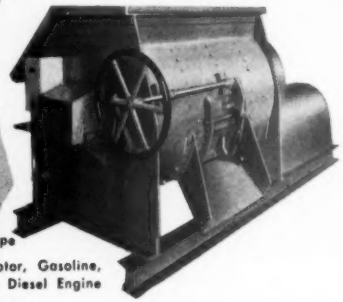
why

does REUTHER, one of New Jersey's biggest and busiest block manufacturers, use only . . .

The KELLEY "30-D" MIXER

because

Andy Reuther, owner, says, "nine hours a day, day-in and day-out for seven years, our Kelley Mixers have been doing a grueling job . . . and we haven't lost a minute with them because of mechanical fault or failure. They're honeys!"



The KELLEY "30-D" MIXER

- 30 Cu. Ft. Paddle Blade Type
- Available in Motor, Gasoline, Clutch Pulley or Diesel Engine Drives
- Also Available: 20 Cu. Ft. MIXER (Kelley 20T)

Write for full technical information and specifications

WITTEMANN MACHINERY CO.

Successors to E. B. Kelley Co.

FARMINGDALE NEW JERSEY

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*see also detailed information in 1949 Pit and Quarry HANDBOOK and Concrete Industries Yearbook

Another Leader IN THE CONCRETE PRODUCTS INDUSTRY PREFERS BESSER VIBRAPACS!

★ This is the 81st of a series of advertisements featuring some of the leaders of the Concrete Products Industry who are today stepping up block production with Besser Super Vibrapacs. Other leaders will be featured in subsequent issues.

Exterior view of the I. L. Stiles & Son Brick Company plant at North Haven (near New Haven), Conn.

Mr. C. H. Carmichael, Superintendent of the Stiles and Son plant.

"From my past experience, I know that a Besser will give us a quality product and a block that will excel over all competitive block."

That's the way C. H. Carmichael, Plant Superintendent of I. L. Stiles and Son Brick Company, expressed it when asked why his company chose Besser equipment. Mr. Carmichael's experience with Besser machines covers a period of more than 20 years.

An old established New Engand brick plant, I L. Stiles and Son, installed their first Besser Super Vibrapac in January, 1946. They make a beautiful cinder block from cinders obtained locally and cover a trading area of approximately 50 miles around New Haven, Connecticut. Units are cured by low pressure, high temperature steam curing.

Mr. Carmichael is a firm believer in the combination block and brick plant. He says, "By having both block and brick we can furnish both units for the job when before we could only furnish the brick."

BESSER MANUFACTURING CO.

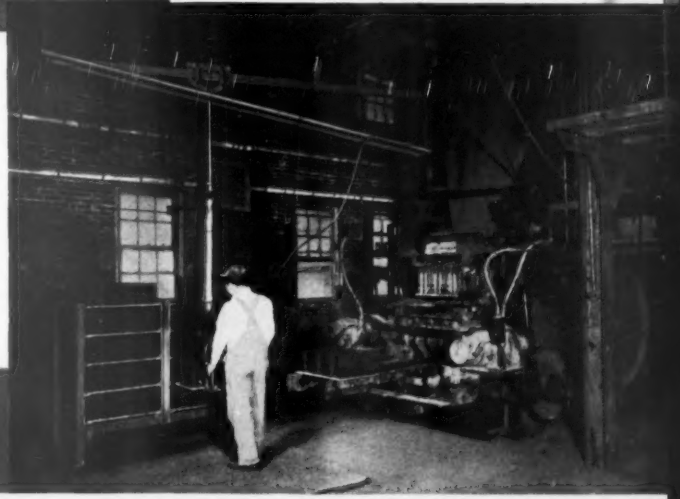
Complete Equipment for Concrete Products Plants

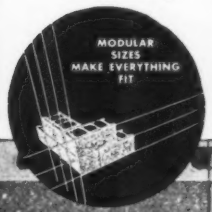
120 — 50th STREET, ALPENA, MICH., U.S.A.

Ridge Road Grammar School, North Haven, Conn. Designed by Douglas Orr, Architect. 35,000 Vibrapac Masonry Units were used on this project and 600,000 brick, all produced in the Stiles & Son plant.

It's Fully Automatic!

A Besser Super Vibrapac is a fully automatic block machine, producing three 7⅝" x 7⅝" x 15⅝" units at a time on one Plain Pallet. Smaller units made in larger multiples on the same pallets. Continuous capacity operation. No machine operator required. Pallets are fed automatically.

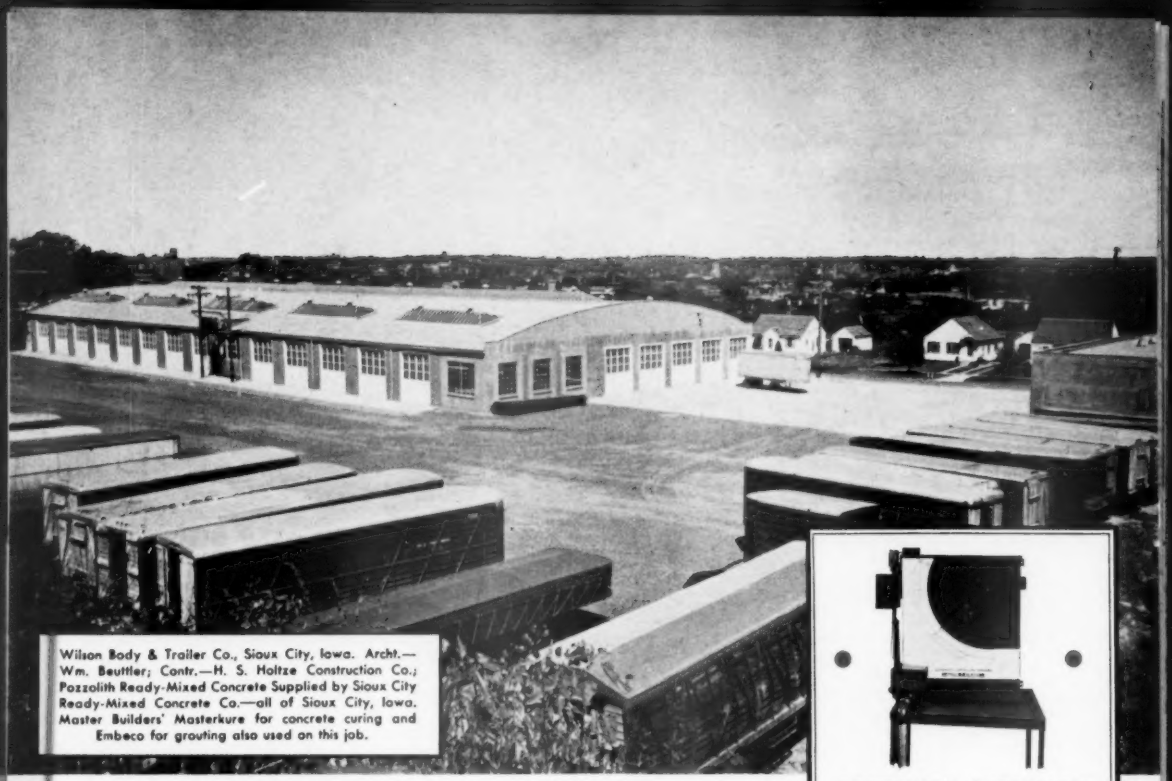




Besser Super Vibrapac installed in Stiles & Son brick plant. Aggregates are mixed in a Besser 56" Mixer below ground level and transported to Vibrapac by a Besser Skip Loader.

BESSER

SUPER VIBRAPAC · BATCH MIXERS · SKIP LOADERS · BLOCK CUBERS · AGLITE PLANTS · ACROW CENTERS · GENUINE PARTS



Wilson Body & Trailer Co., Sioux City, Iowa. Archt.—Wm. Beuttler; Contr.—H. S. Holtze Construction Co.; Pozzolith Ready-Mixed Concrete Supplied by Sioux City Ready-Mixed Concrete Co.—all of Sioux City, Iowa. Master Builders' Masterkure for concrete curing and Embeco for grouting also used on this job.

Modern, Functionally Designed Plant

Built with POZZOLITH READY-MIXED CONCRETE

Easy placeability, good cohesiveness and *assured strength* were obtained in the construction of this modern plant with Pozzolith added with the Master Builders' dispenser. Other advantages resulting from the use of Pozzolith Ready-Mixed Concrete:

1. EASY, ACCURATE CONTROL
2. MINIMIZED SHRINKAGE
3. REDUCED PERMEABILITY
4. GOOD APPEARANCE
5. ECONOMY

Over 400 leading ready-mixed plants in all parts of the country are producing Pozzolith Concrete — and many top design engineers are specifying it — for the same reasons.

Write for full information.

POZZOLITH AUTOMATIC DISPENSER

Operator delivers the correct amount of Pozzolith, in liquid form, required for a batch, by simply setting the control dial and opening valve.

OVER 400 LEADING READY-MIXED PLANTS ARE NOW EQUIPPED WITH THIS DEVICE . . .

WHY?

Because a producer can, at lower cost:

1. Produce waterproof concrete . . . with normal Portland cement.
2. Produce high-early strength concrete . . . with normal Portland cement.
3. Produce air entrained concrete without strength loss . . . with normal Portland cement.
4. Produce all of the above properties out of one cement bin . . . with normal Portland cement — stepping up production, reducing inconvenience in handling and cutting costs.

In normal mixes, concrete of any given durability, strength and workability, is produced more economically with Pozzolith than with any other material on the market, added at the mixer or inter-ground.

the MASTER BUILDERS Co.

CLEVELAND 3, OHIO — TORONTO, ONTARIO

EHRSAM

ESTABLISHED 1872

Specialists in GYPSUM WALLBOARD EQUIPMENT

DESIGNERS & MANUFACTURERS OF . . .

- High Speed Rotary Cut-off
- High Speed Rotary Lath Punch
- High Speed Accelerating Rolls
- Combined Wet Mixer and Distributor
- Heavy Duty, High Speed Forming and Pallet section
- Heavy Duty Kettles for the Calcining Plant
- Material Handling Equipment

CONSULT EHRSAM ENGINEERS ON YOUR COST REDUCTION PROBLEMS

THE J. B. EHRSAM & SONS Manufacturing Co.

ENTERPRISE, Established 1872 KANSAS U.S.A.

PREFORMED

gives you

LONGER LIFE

EASIER HANDLING

MORE ECONOMY

-Preformed-
"HERCULES"
RED-STRAND
WIRE ROPE

We Invite Your Inquiries

Made only by

A. LESCHEN & SONS ROPE CO.
ESTABLISHED 1857
5909 KENNERLY AVENUE • ST. LOUIS 12, MO.
NEW YORK • CHICAGO • HOUSTON • DENVER • BIRMINGHAM
LOS ANGELES • SAN FRANCISCO • PORTLAND • SEATTLE

FLEXCO

BELT FASTENERS AND RIP PLATES

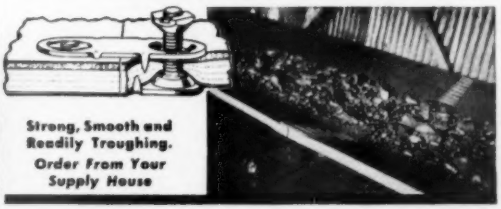
FOR HEAVY CONVEYOR AND ELEVATOR BELTS OF ANY WIDTH

FLEXCO Fasteners make a tight, butt joint of great strength and durability . . . distribute the strain uniformly. Operate smoothly over flat, crowned or take-up pulleys. Made of steel, Monel, Everdur and Promal.

FLEXCO Rip Plates are for repairing and patching damaged belts.

Ask for Bulletin F-100

FLEXIBLE STEEL LACING COMPANY
4623 Lexington St., Chicago 44, Illinois



Strong, Smooth and Readily Troughing.
Order From Your Supply House

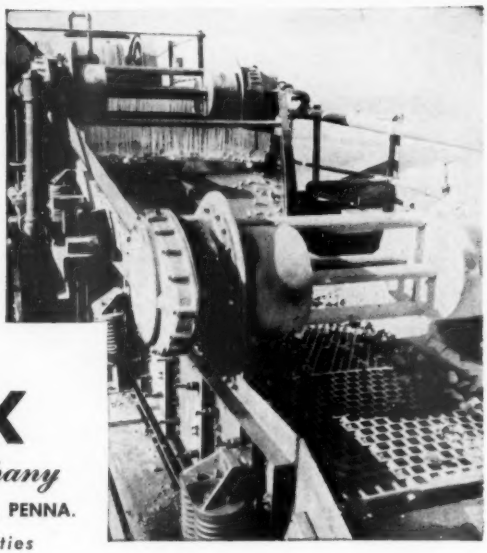
Heat-treated for the tough job

For especially tough screening jobs, Hendrick Perforated Metal Plate is heat-treated to increase its resistance to abrasion. It's ideal for vibrating and shaking screens, because it maintains uniformity of mesh throughout its unusually long service life.

Furnished either flat or corrugated, its full clearance obviates clogging, and the ease with which decks can be changed minimizes labor costs.

Available with any desired shape of opening, Hendrick Perforated Metal Plate can be supplied in the proper gauges of tank, high carbon, high tensile, and abrasive-resisting steels, and in other commercially rolled metals.

Write for a copy of new edition of Hendrick Perforated Plate Catalogue.



SEE OUR CATALOG IN SWEET'S

HENDRICK

Manufacturing Company

39 DUNDAFF STREET, CARBONDALE, PENNA.

Sales Offices In Principal Cities

Perforated Metals
Perforated Metal Screens
Architectural Grilles
Mitco Open Steel Flooring, "Shur-Site" Treads and Armorgrids

PIT AND QUARRY

Research Department

538 South Clark St., Chicago, Ill.

Please send me catalogs and Prices concerning the following items checked below:

- ☐ Admixtures, Concrete
- ☐ Agitators, Slurry
- ☐ Aggregate-Bituminizing Plants
- ☐ Air Cleaners
- ☐ Air Compressors
- ☐ Asphalt Mixing Plants
- ☐ Asphalt Mixers
- ☐ Bag Filling and Weighing Machinery
- ☐ Bags, Cloth
- ☐ Bags, Paper
- ☐ Balls, Steel
- ☐ Barges, Steel
- ☐ Batching Equipment
- ☐ Belt Dressing
- ☐ Belt Fasteners
- ☐ Belting, Conveyor and Elevator
- ☐ Belting, Transmission
- ☐ Belt Tightening
- ☐ Bin, Gates
- ☐ Bins
- ☐ Blasting Powder
- ☐ Blocks, Friction
- ☐ Bodies, Motor Truck
- ☐ Buckets, Clamshell
- ☐ Buckets, Conveyor and Elevator
- ☐ Buckets, Dragline
- ☐ Buckets, Orange Peel
- ☐ Cableways, Slackline
- ☐ Calcining Machinery
- ☐ Caps, Blasting
- ☐ Car Dumpers
- ☐ Car Pullers and Movers
- ☐ Carriers, Belt
- ☐ Cars, Dump
- ☐ Cars, Kiln
- ☐ Castings
- ☐ Cement Colors
- ☐ Cement Plants, Bulk
- ☐ Chains, Conveyor and Elevator and Dredge
- ☐ Chains, Power Shovel, Crane
- ☐ Chains, Transmission
- ☐ Classifiers
- ☐ Clutches
- ☐ Clutches, Magnetic
- ☐ Concrete Block Machines
- ☐ Concrete Brick Machines
- ☐ Concrete Joist Machines
- ☐ Concrete Stave Machines
- ☐ Concrete Plants, Ready Mix
- ☐ Cones, Washing
- ☐ Connectors, Wire Rope
- ☐ Conveyors, Apron
- ☐ Conveyors, Belt
- ☐ Conveyors, Concrete
- ☐ Conveyors, Screw
- ☐ Conveyors, Skip
- ☐ Coolers
- ☐ Coupling, Flexible
- ☐ Cranes, Locomotive
- ☐ Cranes, Overhead Traveling
- ☐ Cranes, Truck
- ☐ Crushers, Cone
- ☐ Crushers, Gyratory
- ☐ Crushers, Hammer
- ☐ Crushers, Jaw
- ☐ Crushers, Ring
- ☐ Crushers, Roll
- ☐ Cutter Heads, Dredging
- ☐ Derricks
- ☐ Draglines, Cableway
- ☐ Draglines, Revolving Boom
- ☐ Dredges, Hydraulic
- ☐ Dredges, Ladder
- ☐ Drills, Air
- ☐ Drills, Blast Hole
- ☐ Drills, Diamond
- ☐ Drills, Hand Hammer
- ☐ Drills, Sharpening Machinery
- ☐ Dryers, Rotary
- ☐ Dust Collecting Systems
- ☐ Dynamite
- ☐ Elevators, Bucket
- ☐ Engines, Diesel
- ☐ Engines, Gasoline
- ☐ Engines, Hoisting
- ☐ Explosives
- ☐ Feeders
- ☐ Filters
- ☐ Filters, Oil
- ☐ Fire Brick
- ☐ Frogs and Switches
- ☐ Fuses, Blasting
- ☐ Fuses, Detonating
- ☐ Gears
- ☐ Grease
- ☐ Grinding Balls
- ☐ Grizzlies
- ☐ Guns, Hydraulic
- ☐ Hardfacing Alloys
- ☐ Hoists
- ☐ Hoists, Skip
- ☐ Hose, Air, Water
- ☐ Hose, Suction
- ☐ Hydrators, Lime
- ☐ Idlers, Conveyor
- ☐ Kettles, Calcining
- ☐ Kilns, High Pressure Steam
- ☐ Kilns, Rotary
- ☐ Kilns, Vertical
- ☐ Lift Trucks
- ☐ Lime Putty Plants
- ☐ Lining, Kiln
- ☐ Loaders
- ☐ Loaders and Unloaders, Box Car
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- ☐ Locomotives, Gasoline
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- ☐ Mills, Compartment
- ☐ Mills, Tube
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- ☐ Molds, Concrete
- ☐ Motors, Electric
- ☐ Motor Trucks, Ready-Mixed Concrete
- ☐ Nozzles
- ☐ Nozzles, Spray
- ☐ Oil Burners, Pneumatic
- ☐ Oilers, Pallet
- ☐ Pallets, Concrete Block
- ☐ Perforated Plate
- ☐ Pipe, Spiral Welded
- ☐ Pipe
- ☐ Poidometers
- ☐ Pulleys, Clutch
- ☐ Pulleys, Magnetic
- ☐ Pulverized Fuel Systems
- ☐ Pulverizers, Ball, Conical, Pebble
- ☐ Pulverizers, Hammer
- ☐ Pulverizers, Ring
- ☐ Pulverizers, Rod
- ☐ Pulverizers, Roll
- ☐ Pumps, Centrifugal
- ☐ Pumps, Deep Well
- ☐ Pumps, Dredge
- ☐ Pumps, Slurry
- ☐ Rails
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- ☐ Screens, Revolving
- ☐ Screens, Shaking
- ☐ Screens, Vibrating
- ☐ Separators, Air
- ☐ Separators, Dry Centrifugal
- ☐ Separators, Magnetic
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- ☐ Skips
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- ☐ Slugs and Balls, Grinding
- ☐ Speed Reducers and Gears
- ☐ Sprockets
- ☐ Stokers
- ☐ Tanks, Concrete and Steel
- ☐ Tanks, Sand Settling
- ☐ Testing Equipment
- ☐ Thickeners, Slurry
- ☐ Track, Portable
- ☐ Track, Shifters
- ☐ Tractors, Crawler
- ☐ Tramways, Aerial
- ☐ Trippers, Belt
- ☐ Trippers, Tramway
- ☐ Unloaders
- ☐ Valves
- ☐ Vibrators, Electric
- ☐ Washers and Scrubbers, Sand, Gravel, Stone
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Light weight aggregate by the DWIGHT-LLOYD* Sintering Process on DWIGHT-LLOYD* Sintering Machines.

Over 40 years' experience sintering ores and nometallic materials.

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A "NON-ELECTRIC" MAGNETIC SEPARATOR PULLEY GUARANTEED TO EQUAL OR EXCEED THE PERFORMANCE OF AN ELECTRO MAGNETIC SEPARATOR PULLEY

IT'S TRUE . . . ONLY HOMER HEAVY-DUTY Permanent "non-electric" Magnetic Pulleys are guaranteed to equal or exceed the performance of electro magnetic pulleys of same size and capacity.
HOMER Heavy-Duty Pulleys available in standard diameters from 12" to 30", with belt widths from 4" to 60". Write for descriptive data.

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For Cost Reduction on Material Reduction...

WILLIAMS' "HEAVY-DUTY"

HAMMERMILLS

Built to take 6" feed and reduce to agricultural limestone, ¾" stone and other small sizes in *one operation!* Crushing occurs on unusually heavy breaker and grinding plate before reaching grate. This permits grates to be used for sizing only, minimizing wear. The result; more output, more quickly reduced at less operating cost.

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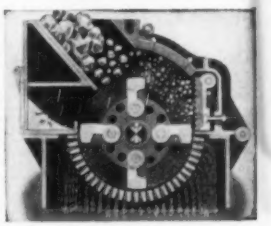

WILLIAMS ALSO MAKES...
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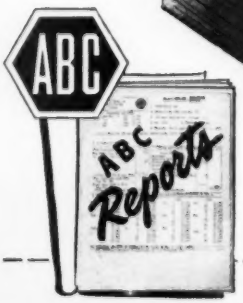
Send the Right Message to the Right People

Paid subscriptions and renewals, as defined by A.B.C. standards, indicate a reader audience that has responded to a publication's editorial appeal. With the interests of readers thus identified, it becomes possible to reach specialized groups effectively with specialized advertising appeals.



THERE is no substitute for FACTS. That goes for measuring advertising values or making laboratory tests of materials for your factory. When you buy advertising space in a publication you have a cash investment in every copy of the issue that carries your sales message. Obviously some of the people who receive the paper are better prospects for your goods and services than others. Thus the distribution of your advertising, via the publication, becomes a No. 1 factor in the success or failure of your investment. To appraise a publication's advertising value to your business therefore it is necessary to have all the facts about its circulation.

Factual information regarding the identity, quality and size of business paper audiences is available to advertisers in the reports issued by the Audit Bureau of Circulations. The Bureau, a cooperative association of 3300 advertisers, advertising agencies and publishers, has established standards for measuring circulations—maintains a staff of experienced circulation auditors to audit the circulations of publisher members—issues the information thus obtained in A.B.C. reports for space buyers to use in evaluating, comparing and selecting media.

The audited information in A.B.C. business paper reports includes the answers to these questions: **How much paid circulation? How much unpaid? What do subscribers pay? What is their occupation or kind of business? Were premiums used as circulation inducements? How many subscribers renewed? How many are in arrears? Where are the subscribers located?**

By using the audited information in A.B.C. reports in connection with market facts you can accurately judge media for its advertising value to your business. This business paper is a member of the Audit Bureau of Circulations. Ask for a copy of our A.B.C. report and then study it.

PIT and QUARRY

BROADCAST R and Q SECTION

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Attorney at Law

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Quarries
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Operation
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EXPANDED AGGREGATE. ROCK WOOL. HYDRAULIC CEMENTS
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Fireclays, coal, limestone, gravel deposits, all minerals. Blast hole drilling.
MOTT CORE DRILLING CO.
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All Sizes
Track Accessories
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CORE DRILLING
ANYWHERE
We look into the earth
PENNSYLVANIA
DRILLING COMPANY
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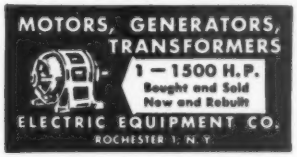
HELP WANTED
INDUSTRIAL SAND PLANT SUPT.
Midwest District. Good advancement opportunities. Give birthplace and date, education, equipment knowledge, past experience, salary expected, together with other pertinent facts.
Box No. Q 10 c/o Pit and Quarry Publications
538 So. Clark St. Chicago 5, Ill.



WANTED
One 4 or 5 cu. yd.
MODERN ELECTRIC SHOVEL
Box No. S 5, c/o Pit & Quarry Publications
538 So. Clark St., Chicago 5, Illinois

POSITION WANTED
Supt. or mgr. of aggregate producing plant, 20 years experience. Location immaterial. References.
Box S 6, c/o Pit and Quarry Publications
538 So. Clark St. Chicago 5, Ill.

WANT TO BUY
SAND AND GRAVEL OR STONE QUARRY BUSINESS in or near Pennsylvania. Material must pass state specifications. Write giving full particulars.
Box R 16, c/o Pit & Quarry Publications
538 So. Clark Street Chicago 5, Illinois

WANTED
6 CU. YD. DRAGLINE BUCKET
Preferably perforated.
Box No. S 9, c/o Pit & Quarry Publications
538 So. Clark Street Chicago 5, Illinois

OPPORTUNITY
Well established Crushed Stone and Agline producer offers an excellent investment opportunity. Need two to ten thousand for expansion. 5 & 6% interest short or long term.
Box No. S 12, c/o Pit and Quarry Publications
538 South Clark St. Chicago 5, Illinois

WANTED
1¼ yd. Electric Shovel—Bucyrus No. 30B or equivalent. Also 36" ga. 5 ton gasoline locomotive.
Box No. S 10, c/o Pit & Quarry Publications
538 So. Clark St., Chicago 5, Illinois

WANTED
20 to 40 cu. yd. steel hopper; skid, wheel, or crawler mounted; heavy duty to withstand 2½ cu. yd. dragline loading with boulders up to 12".
J. L. SHIELY COMPANY, INC.
1101 Snelling Ave. N. St. Paul 4, Minn.

WANTED

60" x 48" Jaw Crusher
42" Gyratory Crusher

THE NATIONAL LIME AND STONE CO.
Findlay, Ohio

WANTED
2—EUCLID 15-Ton Late Model End Dump Trucks
THE WALLACE STONE COMPANY
Bay Port Michigan

WANTED
USED GYRATORY CRUSHER
20 OR 30 INCH
J&K STONE & GRAVEL, INC.
R. R. 1 Muncie, Indiana

WANTED
BESSER SUPER VIBRAPAC BLOCK MACHINE
STONE THE CRANE MAN
415 Brainard Avenue Detroit 1, Michigan

Quarry Supt. & Production Mgr. seeks difficult or problem quarry connection on a profit sharing, cost or production basis. Presently employed operating large scale limestone quarry —thoroly experienced all phases of modern practice. Married, 48 years of age, CE degree—location immaterial but inducements must be in line. Address **Box No. R 3, c/o Pit & Quarry Publications, 538 So. Clark St., Chicago 5, Illinois.**

WANTED
New or Used 48" wide Belt Conveyor 150 ft. to 200 ft. centers with all carriers, idlers, head and tail machinery, etc.
HARRY E. ORKIN
Slatington 3845 Slatington, Penna.

WANTED
1—Rebuilt 150 hp. totally-inclosed dustproof 440 volts, 60 cycle, 3 phase, 900 to 1200 rpm squirrel-cage motor. Motor shaft for v-belt drive.
1—Used bucket elevator 30 to 35 feet long, 18 to 24 inch bucket width.
NEW POINT STONE COMPANY
Batesville, Indiana

WANTED
Complete shovel front for Model LS-85 Link Belt Crane.
MERTES MACHINERY COMPANY
1622—S. 1st St., Milwaukee 4, Wis.

L.B.SMITH INC. OFFERS

AIR COMPRESSORS

Worthington two-stage, water cooled, vertical 250 ㎥, 60 CFM, new condition.

Gardner-Denver, 105 foot, with air receiver, hose reel, driven by power take-off and mounted 1941 Ford.

Gardner-Denver air-cooled 105 foot with receiver, V-Belt driven from power take-off and mounted on 1942 Ford chassis with Wood two-yard dump body.

Gardner-Denver two-stage 160 ft., skid mounted.

Worthington 210 cubic foot, two-stage air-cooled, on skid base with Hercules diesel.

Chicago Pneumatic 210 cubic foot, two-stage, air-cooled, Caterpillar diesel on four rubber tired wheels.

Gardner-Denver 315 cu. ft. two-stage, skid mounted, Murphy four-cylinder diesel.

Pennsylvania 12" x 10" class 3A single cylinder, 355 cubic foot P.D., flat belt driven, 50 HP slip ring motor.

BELT CONVEYORS

New 18" — 24" — 30" — 36"

SHOVELS & CRANES

Lorain 41, ¾ yd. crawler shovel & crane

Lorain 40, ¾ yd comb. shovel, clam, crane

Lorain 40 truck crane, Waukesha engine, mounted on Mack chassis

P&H Model 255A crawler shovel

Insley K-12, ½ yd. shovel

QUARRY EQUIPMENT & BINS

18 x 36 Farrell deep jaw crusher.

10 x 36 Cedarapids, practically new.

10 x 7 Allis Chalmers Blake type jaw crusher. Williams 20-S pulverizer.

60 ton 2 compartment storage bin with clam shell gates.

Allis-Chalmers 5x14 double-deck screen

Cedarapids No. 1 Kubit

Cedarapids 1036 jaw crusher

GRADERS

Warco Model D-76 tandem driven diesel grader, 12' blade, V-type scarifier, deluxe cab, 13.00 x 24 8-ply lug tires, hydraulic power control steering, International UD-14A diesel.

ELECTRIC MOTORS

New & Rebuilt — All sizes
3 to 125 HP in stock
Open & totally enclosed

TRUCKS — TRAILERS

1½-ton Ford & Chevrolet.
2½-ton GMC. New and rebuilt.
Sterling COE Model 255GCS tandem drive tractor. 200 HP Cummins supercharged diesel, excel. cond.
40-ton Rogers low bed equipment trailer, air-brakes, outriggers, excel. cond.
Van Trailers with 17'x7'8"x6' bodies. Five ton capacity.
2,000 gallon tanks on semi-trailer mounting.
New and rebuilt dump bodies.

CLAMSHELL BUCKETS
DRAGLINE BUCKETS
SCRAPER BUCKETS

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New JXD Hercules gasoline.
New Murphy 4 and 6 cylinder diesel.
GMC 6 and 12 cylinder. Practically new.
Buda, Hercules, Hill, rebuilt.

GENERATORS & LIGHT PLANTS

1½ KW to 125 KW, alternating and direct current, gasoline and diesel powered.

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LASTING • BONAFIDE • SERVICE — L.B. SMITH, INC.

WE OWN THE EQUIPMENT WE ADVERTISE

SHIPMENT FROM STOCK

AIR COMPRESSORS — I. R. Centrifugal, 4-stage, single flow, 6500 CFM, 10#, M. D. (UNUSED).
Fuller, rotary, type C-300, single stage.

CONVEYORS—L. B., Flat 24" wide, 30'.
Rapid reversible power booster Mod. RPBC-1516, 16" x 15'

CRUSHERS—
#6 Williams Hammer.
Jeffrey Swing Hammer, 36" x 24", A2.
Stedman Mill, 4-cage, 36".
Williams Hammermill #3.

DIESEL GENERATORS — 60 KW G.M. 6-71RC, 3/60/127-220, complete. Used only 100 hrs.
100 KW Hercules DNX-6, 3/60/127-220. Unit completely enclosed.
100 KW Superior GDB-8, 120/240 DC, comp.

DRYERS & KILNS
4'x30'x4½", Traylor.
7'x45'x5½", Link Belt.
3'10"x16' Link Belt, Roto Louvre.
7'6"x125', Allis-Chalmers.
6'6"x50', Vulcan.

ELEVATORS-BUCKET—Webster, 48', MI Buckets, 14"x7".
Jeffrey, 68', MI Buckets, 10"x6".

FANS & BLOWERS—From 1000-80,000 CFM.

FEEDERS-VIBRATING—Syntron Type F33.
Jeffrey, 18"x36".
Allis-Chalmers, 36"x12"x6'.

FILTER — 5'4"x6' Oliver, continuous, wood drum, complete with accessories.

PUMPS—Centrifugal—from 20 to 2500 gals. Vacuum, Stokes, Mod. 212C, 100 CFM.

REDUCERS—Ratio 4-1 to 263-1, 3 to 10 HP. Vari-Speed, ratio 2-1 to 6-1, 3 to 7½ HP.

STACKS—5'3"x110', welded, ⅛" x ⅜".
42"x37' high, ⅛" & ¾".

HEAT & POWER, INC.

70 PINE ST. NEW YORK 5, N. Y.
DIGBY 8-0373

USED EQUIPMENT FOR SALE

3 Bucyrus Erie Steam Shovels ¾ Yd., 1 with Caterpillar, 2 with Wheels. Condition — Good. Price $1,000.00 each.

3 Wisconsin FV-4 Air Cooled Motors — Practically new. Price $200.00 each.

1 Falk Speed Reducer, #9—DA—106 H.P. with Motor Base, complete with Falk Coupling and Fast Coupling. Condition — Excellent. Price $1,000.

1 Link Belt Rotating Screen 4' x 16' Complete with extra screen plates 4" to 7" openings. Condition—Good. Price $400.00.

1 Yale Electric Lift Truck — Model KM30-2M 2,000# Cap. with Hoist and Trolley. Includes 2 Exide Batteries, 1 Charger and 16 Self Dumping ¾ ton Steel Hoppers with Casters. Condition—Excellent. Price upon request.

1 Continuous Clyde Hydrator Plant Cap. 5 tons per hr. Complete with Feeder, Raw Lime Bin, Beater Mill, Cyclone, 25 ton Storage Tank, Crusher and Elevator. Condition—Good. Price upon request.

1 Pebble Lime Plant including Roll Crusher, Elevator and Screen. Condition—Good. Price upon request.

THOMASVILLE STONE AND LIME COMPANY

THOMASVILLE, PENNSYLVANIA

FOR SALE

(Continuous rated slip ring)

1—25 HP, G.E., Type M444, 220/440/60/3/900 rpm nearly new.
3—20 HP, G.E., Type MT522, 220/440/60/3/900 rpm.
3—30 HP, G.E., Type MT536,2200/60/3/900 rpm.
1—25 HP, Triumph, 2200/60/3/1200 rpm.
1—30 HP, G.E., MT, 2200/60/3/600, automatic control.
1—75 HP, G.E., MT, 220/440/60/3/900. Drum & resistance.
1—150 HP, G.E., I-M, 220/440/60/3/450 rpm., 3 bearing.
1—150 HP, West. CW, 220/440/60/3/490 rpm, 3 bearing.
1—150 HP, West. CW, 220/440/60/3/690 rpm, 2 bearing.
1—300 HP, G.E., I-P, 220/440/60/3/900 rpm, 2 bearing.
1—600 HP, G.E., I-M, 2200/60/3/450 rpm, 2 bearing.
2—200 HP, West. CW, 2200/60/3/585 rpm, 2 bearing.
1—200 HP, G.E., I-M, 2200/60/3/585 rpm, 2 bearing.
1—150 HP, G.E., I-M, 2200/60/3/720 rpm, 2 bearing.

E. P. DIETRICK

829 Richmond Street, Scranton 9, Pennsylvania
D-22

FOR SALE

1—2' SYMONS STANDARD CONE CRUSHER
Serial No. 2286
1—36" STEDMAN IMPACT TYPE CRUSHER

Available about February 1, 1950; are now in operation; can be furnished with motors and drive. Replacing with larger machines.

OHIO VALLEY SAND CO.

New Martinsville, West Virginia

MINE AND SLOPE HOISTS

1—20,000# Dbl. Drum Mundy w/o motor
1—26,000# Nordberg Sgl. Drum
1—10,000# Nordberg Sgl. Drum AC
1—17,000# Ottumwa Sgl. Drum AC
1—11,000# Ottumwa Sgl. Drum AC
1—16,000# Allis Chalmers Sgl. Drum
1—30,000# Allis Chalmers Dbl. Drum AC
1— 7,000# Allis Chalmers Dbl. Drum AC
1— 7,000# Flory Sgl. Drum AC
1—10,000# Wellman AC

CRUSHERS AND SCREENS

1—12x16 Eagle Dbl. Roll
1—18x20 Eagle Dbl. Roll
1—3B American Pulverizer
1—30x54 McNally Pitts. Sgl. Roll
2—24x20 Jeff. Flextooth
1—25S Kennedy VanSaun Gearless
1—Superior McCully 8" Gyratory
1—30x36 S. A. Ring type Knittel (never used)
2—4x10 S. A. Vibrating Screens
4—Tyler Vibrating Screens

CARPULLERS AND LOADERS

1—5000# Jeffrey Carspotter AC
1—6000# Brownie Carspotter AC
1—5000# Link Belt Carspotter AC
1—S. A. Heavy Duty Loader AC

MISCELLANEOUS

1—5 ton Merrick Weightometer
2—2½" Dayton Dowd 300 GM Cent. Pump, AC motor
1—48" Colo. Simplex Classifier
2—100 ton, 5 sheaves; 2—50 and 2—40 ton 4 sheave blocks, complete, new.
1—11B Sullivan Cutter with Bowdil bar, chain and bug duster, 50 HP DC motor.
1—PL1114 Joy Elevator, 10 HP DC, permissable motor.
1—B. E. 3¼ yd. Electric Shovel B85.

Hawkins & Co.

126 So. Michigan Ave., Chicago 3, Illinois
Telephone HArrison 7-0725

FOR SALE

225 HP Busch Sulzer 150 KW diesel engine generator set.
1¼ yard Bucyrus Erie 43-B diesel crane-dragline, new 1943.
30 ton Davenport diesel switching locomotive, new 1942.
30 ton Orton locomotive crane, diesel powered, built 1942.
150 HP portable firebox boiler. ASME Code. 250# steam pressure.

MISSISSIPPI VALLEY EQUIPMENT COMPANY
507 Locust St. St. Louis 1, Mo.

FOR SALE

SCREEN Diamond Mogul three deck vibrator 4' x 12'
HOIST Thomas type K single drum 50HP
AIR COMPRESSOR 315 CFM stationary, 75 HP
UNIVERSAL CRANE on AC Mack chassis

G. & W. H. CORSON, INC.
Plymouth Meeting, Penna.

BASIC REFRACTORIES

INCORPORATED
845 HANNA BUILDING, CLEVELAND 15, OHIO

OFFERS THE FOLLOWING EQUIPMENT FOR IMMEDIATE SALE

At Gabbs, Nevada

Calcine Plant — Complete calcining plant including 7 story metal clad steel frame building 38' x 118' x 78' high, 4 Herreshoff oil fired furnaces 22'-2" diameter with 14 hearths with 4—5' x 45' Stearns Roger Baker type coolers and auxiliary equipment and repair parts.

Filters — 2—14' diameter x 18' Oliver Dorrco continuous drum filters, completely equipped including 1—24" x 10" Ingersoll-Rand dry vacuum pump.

Dryers — 2—Ruggles-Coles 90" x 60' Class XF14 oil fired dryers with Clarage draft fans, Hauck oil burners, and 12' diamete. Ruggles-Coles cyclone dust collectors.

Pressure Blower — 1—Victor-Acme type AFS pressure blower with 15 H.P. motor and air receiver.

Oil Burners — 2—York Model D-400 oil burners with 3 H.P. motor.

At Maple Grove, Ohio

Shovels — 1—Bucyrus-Erie 120-B electric with 4 cu. yd. dipper and $33,000 stock of spare parts.
1—Marion model 32 steam with 1¼ yd. dipper.

Crane & Crane Equipment — 1—Browning No. 8 locomotive steam crane with 50 ft. boom.
1—57 ft. heavy steel boom for Bucyrus-Erie Class 160-17½ R.R. Crane.

Vibrator — 1—Jeffrey No. 5 Electric Vibrating unit.

Drill — 1—Loomis #44 clipper electric blast hole well drill.

Alternator — 1—General Electric 40 KVA alternator unit.

Pan Feeder — 1—Stephens-Adamson pan feeder 24" x 3'2" centers.

Motor — 1—30 H.P. Ideal type AVE, 440 Volt, 3 phase motor.

Filter Unit — 1—Dorr Co., Dorrco 12' diameter x 10' long Drum Type Filter having a horizontal unloading belt conveyor driven by
1—Philadelphia Gear Works 7½ H.P. Spur Geared Reducer and
1—7½ H.P. Allis Chalmers motor type DR, 3 Ph., 60 cy., 440 V., 1140 R.P.M. with
1—Ingersoll-Rand 22" x 8" Horizontal single Vacuum Pump with moisture trap and miscellaneous piping, flat belt driven by
1—30 H.P. Allis Chalmers motor type ARX, 3 Ph., 60 cy., 440 V., 1130 R.P.M., and
1—Connersville Blower Co. Size 20B rotary pressure blower mounted on cast iron base and directly connected to
1—3 HP. Allis Chalmers motor type AR, 3 Ph., 60 cy., 440 V.

Fan — 1—New Sturtevant Silentvane Dan, Design 7, size 80, Class 111.

Preheater — 1—F. L. Smidth & Co. high temperature alloy rotary kiln feed preheater system for 10' diameter kiln.

Sand Pump — 1—Denver Equipment Co. 2" sand pump with 3 H.P. Westinghouse motor.

At Bettsville, Ohio

Rotary Kilns — 1—Kennedy Van Saun 7' diameter x 110' ⅜" steel rotary kiln. Riveted shell with two supports and open gear train drive.
2—Bonnot Co. 8' diameter x 115' ⅜" steel rotary kilns. Riveted shells with two supports and open gear train drives.

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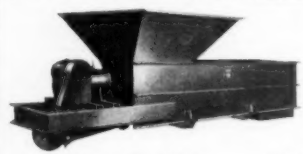

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7½	Falk	13.3:1	4DA-M
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3	W. A. Jones	68:1	
3	D. O. James	41:1	122

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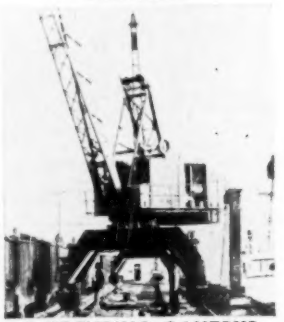

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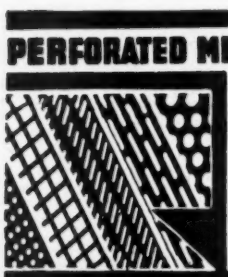

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